

CORPORATE HISTORY—Continued

(Concluded from Page 18, Column 5)

Mills Corp., Chattanooga: president of Richmond Spinning Co. Raoul was president of Odorless Refrigerator Co., in 1905, Loomis and Hart Furniture Co., and Acme Kitchen Furniture Co. He has general supervision of the business and is largest individual stockholder. Frazier is in charge of refrigerator sales. Arnold was an officer of the Odorless Refrigerator Co.

The company manufactures furniture and wood and metal refrigerator cabinets.

Beginning the summer of 1929 the company also manufactured complete household electric refrigerators, mechanical units for these being manufactured by Sunbeam Electric Mfg. Co. They were distributed under the trade name Cavalier.

Specifications were given for 11 "Cavalier" models in 1932 Refrigeration Directory. The system was conventional with rotary unit SO₂ compressor, direct-driven with unit located above freezing chamber. Used G-E temperature control. Three models used 1/2-hp. motors and the others used 3/4-hp. size.

About Jan. 1, 1934, when returning listings for the 1934 Refrigeration Directory, the Tennessee Furniture Corp. stated that they were no longer manufacturing complete household electric refrigerators but were still manufacturing electric refrigerator cabinets.

Thermo Ice Corp.

Last known address: Auburn, N. Y. Incorporated July 16, 1927, (New York). Officers (1929): E. G. Metcalf, director; H. G. Metcalf, pres.; N. B. Wolcott, v. p. & mgr.; S. W. Metcalf, secy.; L. E. Lippitt, treas.

Corporation manufactured refrigerating systems under patents owned by Wolcott, the output being sold to hotels, meat markets, bottlers, etc. It was said that the company transacted some business during 1933 although the volume was not large.

On Aug. 7, 1930, Thermo Ice Corp. filed certificate of dissolution.

Toledo Coldmaker Co.

Toledo, Ohio. Commercial ammonia machines in 1, 2, 4, and 6-ton capacities. Used a belt-driven, reciprocating compressor with two cylinders. Double-pipe, water-cooled condensers.

Triumph Ice Machine Co.

Last known address: 3055 South St., Cincinnati, Ohio. Name (Triumph Ice Machine Co.) used in connection with business of Triumph Electric Co. at the same address.

Officers of the Triumph Electric Co.: J. C. Hobart, pres. & gen. mgr.; G. P. Hunt, v. p. & secy.-treas.; and J. A. Hamilton, auditor. Hobart succeeded to presidency at his father's death, in November, 1922.

Their operations had been extensive and ice machinery department was successful, but could not offset losses of motor department.

Triumph Electric Co. incorporated May, 1899, (Ohio). On March 25, 1925, Sanford Brown was appointed receiver and on June 5, 1926, declared that machinery and materials was bought by James Burke president of Burke Electric Co. of Erie, Pa.

Burke stated July 2, 1926 that he had sold part of tools and equipment and would dispose of all equipment and patents purchased by him. He planned to remove repair business to Erie.

A new company (Triumph Elec. Corp. of 110 E. 70th St., Cincinnati, Ohio) was started in 1926 by those to whom Burke had sold his interests. Officers (1926): J. C. Hobart, pres. & gen. mgr.; G. P. Hunt, v. p. & secy.-treas.; E. W. Hobart, secy. Directors: Officers and E. T. Mouligner.

Company at the date of this report was said to specialize in repairing of electric motors and generators at the refrigerating plant.

According to May 25, 1927 ERN, Triumph Ice Machine Co. manufactured ice cream cabinets, commercial refrigerating machines, water coolers, motors for commercial machines, compressors, condensers, expanders, oil interceptors, ammonia condensers, receivers, brine coolers, and ammonia fittings.

Reciprocating ammonia compressors up to 150-ton capacity were made.

Officers as given in the May 25, 1927, ERN: J. C. Hobart, pres. & gen. mgr.; E. W. Hobart, secy.; G. P. Hunt, treas.; J. O. Schultz, sales mgr. & chief engr.; M. L. Block, pur. agt.; J. L. McClure, works mgr. Triumph Ice Machine Co. was listed as branch of Triumph Elec. Corp. According to a report of Jan. 27, 1934, Triumph Elec. Corp. was in operation at that time.

Trotter & Sons, T. W.

Last known address: 55 Elm St., Rochester, N. Y.

On May 9, 1931, F. C. Trotter registered certificate that he was doing business under that name. Business had been established many years before by C. W. Trotter who later admitted his two sons, F. C. and H. L. Trotter. C. W. Trotter died in 1909, his sons carrying on business under old name. H. L. Trotter died March 25, 1930, business being continued by F. C. Trotter and the estate of H. L. Trotter.

Manufactured refrigerators, furnaces, and stoves. Filed voluntary petition in bankruptcy under name of F. C. Trotter about July, 1932.

United States Radio & Television Corp.

Organized December, 1928, (Del.). Acquired assets of Cane Elec. Corp., of Marion, Ind., Apex Elec. Mfg. Co., Chicago, and Radio Allied Mfg. Co., Chicago.

Officers (Oct. 10, 1932): J. Clarke Coit, pres.; A. E. Case, v. p.; W. G. Perkins, v. p.; W. S. Dyer, v. p.; Allen Masick, v. p. Directors: Officers, C. E. Dussing, A. P. Hilmer, J. R. Prince, and J. O. McKensy.

Coit had been president of Simmons Hardware Co. in St. Louis, Mo., and became president of U. S. Radio & Television Corp. in 1930. Case had been president of the Case Elec. Corp., Marion, Ind. Masick had been an attorney identified with the Marion Basket Co., and Superior

Body Corp., Marion, Ind. Perkins was formerly president of the U. S. Radio & Television Corp., and had been interested in Radio Allied Mfg. Co.

Don M. Compton assumed charge as vice president and manager in 1929, but resigned on March 31, 1930, and was succeeded by Coit.

The company manufactured and marketed radios, and radio supplies.

U. S. Hermetic refrigerator was introduced in the spring of 1932 and was manufactured until that company merged with Grunow Corp. of Chicago. Tom Whitehead and Harold Greenwald of Detroit were co-inventors of machine and directed its production. Service and replacement parts are available from General Household Utilities Corp., Marion, Ind. Machine was a one-cylinder hermetic refrigerator using sulphur dioxide as refrigerant. The condensing units had an l.m.e. rating of 110 pounds per 24 hours in an 80° F. room with 23° F. evaporator temperature. Compressor was directly driven at 1740 r.p.m. by 1/2-hp. built-in capacitor Delco motor. Rex cabinets and Ranco controls were used.

U. S. Radio & Television Corp. merged with Grunow Corp. of Chicago to form General Household Utilities Co., Chicago. For service instructions on the U. S. Hermetic machine, see ERN, Aug. 15, 1934.

Universe Corp.

Last known address: 77 West Washington St., Chicago, Ill.

Incorporated September, 1921 (Ill.). Succeeding partnership which had been operated as Universe Co., not inc.

Officers (Oct. 10, 1929): C. H. Canode, pres., treas. & mgr.; S. N. Feck, v. p.; L. B. Strube, secy. Directors: Officers and John Towardsky.

Canode also president of Bronson-Canode Printing Co., 626 Federal St., Chicago, and Farmers and Merchants State Bank of Rochelle, Ill. Towardsky was patentee of refrigerating machine manufactured by corporation.

Company manufactured mechanical refrigerators and coolers.

On March 3, 1926 it was reported to have been taken over by Polaris Electric Refrigerator Co. and moved to Logansport, Ind.

Valerius Corp.

Plymouth St., Jefferson, Wis.

Incorporated Dec. 18, 1926 (Wisconsin), succeeding the Valerius Refrigeration Corp., originally of Milwaukee.

Officers June 22, 1927, ERN: T. L. Valerius, pres.; M. J. Braun, v. p.; P. J. Hayes, secy.; O. Roessler, treas.

Officers (1931): W. C. Mayer, pres.; M. J. Braun, treas.; D. W. Hibbard, mgr.; W. G. von Meyer, secy. Directors: W. C. Mayer, L. J. Miste, L. A. Roessler, M. J. Braun. Mayer succeeded T. L. Valerius who died in 1930.

On May 24, 1931, plant was completely destroyed by fire and later rebuilt on a smaller scale, continuing business. Net sales for 1930 reported \$165,000 and for 1931 through November, \$90,000.

Manufactured soda fountains and electric milk coolers, selling direct to consumer and to local ice cream manufacturing concerns. They were equipped with standard makes of refrigerating machines.

Capital for development of company was furnished by T. L. Valerius, P. J. Hayes, and W. H. Bendelt, according to Feb. 16, 1927, ERN.

On Feb. 15, 1933, Valerius Corp. filed a voluntary petition in bankruptcy.

Valley Engineering Co.

Last known address: 300 Troy St., Dayton, Ohio.

Manufactured electric refrigeration systems. The machine was designed by F. C. Geiler, who also developed the Everite machine made by Everite Products, Inc., which was sold to Trupar Mfg. Co. in 1930.

The refrigeration assets of the Valley Engineering Co., in January, 1926, were taken over by the Iceola Corp. of Indianapolis, Ind., whose patents, etc. were later bought by Frigidaire Corp., Dayton.

Valley Refrigeration Works,

A Division of Peerless Husker Co. Buffalo, N. Y.

Manufactured household electric refrigerators with single-cylinder compressors using SO₂. Condensers were water cooled. Motors were 1/4 or 1/2-hp. Century or Leland, driving the compressor by a chain. Low-side float system.

Vogt Refrigerator Co.

Last known address: 616 Barret Ave., Louisville, Ky.

Before Absopure Refrigeration Corp. was started (April 25, 1927), General Necessities Corp., Detroit, acquired control of capital stock of Vogt Refrigerator Co. in September, 1926. David R. Brown, president, was developing electric refrigeration through a division of General Necessities Corp.

The Absopure division of General Necessities Corp. later went into the hands of receivers in Detroit (winter of 1930).

The refrigeration division of the General Necessities Corp. was later transferred to Absopure Refrigeration Corp. as subsidiary of General Necessities Corp., but the capital stock of the Vogt Refrigerator Co. was not included in the transfer.

According to the receivers of General Necessities Corp. as of Aug. 23, 1930, Vogt Refrigerator Co. was bought by General Necessities Corp. though not paid for and when Absopure Refrigeration Corp. could not profitably run the plant, the receivers ordered the Vogt plant closed and announced that the Vogt Refrigerator Co. had no connection with Absopure Refrigeration Corp.

This gave the Absopure receivers the right to control operations of Absopure Refrigeration Corp. and of throwing out or leaving in the Vogt plant at Louisville, Ky., considered as part of the General Necessities Corp. assets in the hands of receivers.

A report dated Sept. 6, 1930, states that a voluntary petition in bankruptcy was filed against the Vogt Refrigerator Co. by these two creditors: Liberty Fire Insurance Co. and Louisville Gas & Electric Co.

The Franklin Title & Trust Co. was named receiver and the company's assets

in Louisville were liquidated. The plant was taken over by a local bank on the mortgage which they held and as of December, 1930, it was reported that the business had practically been liquidated.

Vogt Refrigerator Co. was a manufacturer of refrigerator cabinets only, and should not be confused with Henry Vogt Machine Co. (Louisville), which manufactures large industrial refrigerating machines.

Ward Electric Refrigeration Co.

2023 S. Michigan Ave., Chicago, Ill. Factory: Buchanan, Mich.

Manufactured the "Ward Electric" and were said to make household and commercial units and cabinets, and also pumps and compressors. (May 25, 1927, ERN.)

Officers (March, 1927): L. W. Ward, pres. & gen. mgr.; L. E. Rollins, v. p. in chg. engr.; Laren Kuenhly, secy.-treas.; H. B. Hutchings, asst. secy.-treas.; E. W. Essman, sales mgr.; W. A. Wallie, adv. mgr.; George Meare, prod. mgr.; M. S. Clay, serv. mgr.; B. D. Church, pur. agt. Officers (May, 1927): L. W. Ward, pres.; Miles Ayraut, v. p. in chg. engr.; H. B. Hutchings, secy.-treas.; A. Humason, sales mgr.; E. W. Essman, sales prom. mgr.; B. D. Church, pur. agt.; H. Schneckenberger, serv. mgr.; M. S. Clay, fact. mgr.

In March, 1927, the company moved from 1221 Beaufait Ave., Detroit, to Buchanan, Mich., and in April plans were announced for production of 15,000 units during 1927, but plans were hindered by lack of working capital.

On Dec. 1, 1927, stock, equipment, and patent rights of the company were sold at auction to Jacob C. Rough, a retired farmer, for \$6,000. He was said to represent Wm. E. Eiler, a Chicago and Lake-side, Mich., real estate dealer and his associates. Certain other assets including the good will and name were bought by Harleigh W. Riley, manager of the Buchanan office Michigan-Indiana Elec. R.R. Co. for \$150. (Dec. 7, 1927, ERN.)

Wayne Home Equipment Co.

Last address under that name: 102 Glasgow Ave., Fort Wayne, Ind.

Chartered June, 1928 (Maryland).

Officers (June 22, 1927 ERN): W. M. Griffin, pres.; B. F. Geyer, v. p.; E. A. Zern, treas.; P. T. Guild, secy. In Aug. 17, 1927, ERN, following executives were listed: F. O. Sallee, sales mgr.; P. L. Iddings, adv. mgr.; W. Brand, gen. supt.; B. A. Robertson, chief engr.; O. P. Barrett, pur. agt.

According to ERN company manufactured household electric refrigerators, commercial refrigeration units, oil burners, domestic water softeners. The household machine used the reciprocating compressor employing sulphur dioxide as refrigerant and had a thermostatic control. 1/4 and 1/2-hp. motors were used.

The company took over the oil burner and electric refrigerator department of Wayne Co. which had entered the electric refrigeration field in 1924. The stock was sold to G. A. Berghoff and he removed the assets from plant of Wayne Co. to 102 Glasgow Ave. On Feb. 16, 1931, assets of electric refrigerator department were sold to Apex Electrical Mfg. Co. of Cleveland, Ohio, for a reported consideration of \$240,000.

On June 6, 1931, Wayne adopted a new name: Wayne Oil Burner Corp.

Weir-Wheelock Co., Inc.

Last known address: 56 Warren St., New York City.

Organized April 20, 1931, (New York).

Officers and directors (Jan. 5, 1932): G. B. Weir, pres.; Dexter Wheelock, treas.; Jack Reede, secy. Weir was also president of Dexter Wheelock and secy.-treas. of Weir-Smith & Co., Inc., electrical specialty selling agents at same address.

The company was formed to purchase refrigerator department of Stanley & Patterson. They supplied small electric refrigerators for office and bar room purposes.

Weir-Wheelock Co., Inc. was assigned to Dexter Wheelock of 56 Warren St. June 10, 1932.

Welsbach Co.

Present address: Essex and Ellis Sts., Gloucester City, N. J.

Chartered April 28, 1900, (N. J.). Organized to take over activities of Welsbach Light Co. and Welsbach Commercial Co.

Controlled through stock ownership by the United Gas Improvement Co. with headquarters at Philadelphia, Pa. The latter is one of the oldest and largest corporations operating in the public utility field.

According to the May 25, 1927 issue of ERN, officers were: Sidney Mason, pres.; Townsend Stites, v. p.; F. J. Rutledge, v. p.; Paul Thompson, v. p.; C. W. Curran, secy.; I. W. Morris, treas. and asst. secy.; E. MacMorris, asst. secy.; T. W. MacLary, asst. treas. Refrigeration Division personnel: Howard R. Lukens, gen. mgr.; R. R. Thompson, sales mgr.; A. D. Hatch, mgr. public relations; C. B. Ryan, Jr., mgr. service & sales prom.; R. D. Lombard, commercial sales engr.; R. B. Havens, adv. mgr.; S. A. Wagner, chief engr.; E. L. Knoedler, gen. supt.; Whitney Kirk, pur. agt.

Mason was replaced as pres. in 1929 by H. R. Marks when he retired. Thompson left as sales mgr. in 1930 to join Philco Radio.

Officers (1934): H. N. Ramsey, pres.; F. J. Rutledge, v. p.; Johns Hopkins, secy.; C. A. Holdcraft, treas. Directors: Officers, W. W. Bodine, C. N. Lauer, H. W. Reed, F. N. Wegener, and J. E. Zimmerman.

1934 products: gas water heaters, gas conversion burners, boilers, griddles, gas mantels, and parts for electrical appliances and refrigerators. Sales are made through jobbers to about 2,000 accounts, covering the entire U. S. and Europe, products being distributed under trade name "Welsbach."

Liquidation of the electric refrigerator inventory is said to have proceeded to the point where it now represents only current supplies and parts required for maintenance of units and service. Inventory losses and refrigeration development expenses were written off as of Dec. 31, 1933.

According to May 25, 1927, ERN, company manufactured electric refrigerator units for household and commercial use, water coolers, pumps and compressors, and thermostats.

The machine had a reciprocating compressor, used ethyl chloride as refrigerant and thermostatic control, with 1/4 and 1/2-hp. motors (Oct. 12, 1927 ERN).

For complete instructions on servicing the Welsbach household refrigerator, see ERN articles in June 13, 20, and 27, 1934.

ant and thermostatic control, with 1/4 and 1/2-hp. motors (Oct. 12, 1927 ERN). Compressor speed was 280 r.p.m.

For complete instructions on servicing the Welsbach household refrigerator, see ERN articles in June 13, 20, and 27, 1934.

Whitehead Refrigerator Co.

58 Hamilton Rd., River Rouge, Mich.

Developed two separate refrigeration systems, the first an "open" type machine for installation in ice boxes or for remote installation, the second a self-contained hermetic machine which was built as a complete refrigerator.

Personnel: T. C. Whitehead, pres.; Harold Greenwald, chief engr.; Rodney Weeks, gen. mgr.; William Edmonds, serv. mgr.; and Bruce Palmer, serv. engr.

Company was organized as a subsidiary of Whitehead & Kales, large manufacturer of structural steel, tanks, trailers, and wheels for the automobile industry.

Open machines were built in two models: the "K" compressor, direct-connected, two-cylinder, with a 1/2-hp. motor for commercial refrigeration, and model "J," a one-cylinder, methyl chloride machine driven by a 1/2-hp. motor, complete with a brine-tank evaporator and automatic expansion, furnished as a unit for installation in old ice boxes.

The last machine developed by Whitehead was a small hermetic furnished complete in the cabinet as a self-contained household refrigerator. This was direct-connected, reciprocating, with Ranco controls and an automatic expansion valve. The hermetic unit was sold to Kelvinator in 1932 when Whitehead & Kales dropped refrigeration.

Wilde Co., W. B.

Last known address: 2800 North Adams St., Peoria, Ill.

Incorporated May, 1923 (Illinois), as Hart Oil Burner Co. Jan. 1, 1925, the name was changed to W. B. Wilde & Co.

Officers (1927): Walter B. Wilde, pres. & treas.; J. E. Martin, v. p.; J. P. Schnellbacher, v. p.; Clara M. Titus, secy.; L. B. Tefft, director.

1925 was said to be a profitable year for company but it suffered reverses in 1926. The company had a well-equipped plant manufacturing refrigerating machines and oil burners.

In 1927, control of the company changed and it was refinanced, all obligations being taken over by the new management.

New officers: A. E. MacInnis, pres. & gen. mgr.; R. H. Bohn, first v. p.; Spencer Merrell, second v. p.; L. B. Tefft, secy.; Jacob Schnellbacher, treas.

A little later the name was changed to Preferred Oil Burners, Inc., and in 1929 Merrell retired as vice president and director and L. A. Welch had become assistant to the president and was elected vice president in August, 1929. George A. Luthy was then acting secretary. Schnellbacher continued as treasurer. S. E. Cowan, auditor.

In December, 1929, name of company was again changed to Hart Oil Burner Corp.

Officers were: L. A. Welch, pres. & mgr.; George A. Luthy, v. p. & treas.; L. B. Tefft, v. p.; Gerald H. Page, secy. Directors: Officers and H. S. Bohn.

At that time the company was manufacturing the Hart Oil Burner, having discontinued the electric refrigeration end of the business. The company still furnishes replacement parts for the refrigerator.

The Hart Electric Icer was a household refrigerator, with a one-cylinder, reciprocating compressor using methyl chloride. It had a 1/4-hp. motor. Cabinets were built by Alaska.

Williams Refrigerator & Dumb Waiter Co.

Last known address: 332 East 95th St., New York, N. Y.

Name used for partnership of William Johnson and Axel Asenius. Business formed April 17, 1929 and began operations at 320 East 95th St. Both Johnson and Asenius had previously been employed by William Williams & Co. at 312 East 95th St.

Company manufactured dumb waiters, refrigerators, and allied articles, installed refrigerators and did general repair work.

Willis Co., H. F.

Household refrigerating machine of the ammonia absorption type. (Sept. 12, 1928, ERN.)

Edgar Wright Co.

Brookfield, Mass.

Zanesville Engineering Corp.

Last known address: Lee & Amelia Sts., Zanesville, Ohio.

Incorporated July 31, 1929 (Ohio), taking over the plant of the Zanesville Engineering & Refrigerating Co., which filed petition in bankruptcy Oct. 25, 1925.

Officers (1928): C. O. Emerich, pres.; J. E. Smith, v. p.; Birger Engstrom, secy.-treas.; J. E. Phillips, asst. secy.-treas.; J. A. Catlan, mgr. Directors: Emerich, Engstrom, Smith, J. S. Brown; L. H. Wise.

Emerich was manager of the industrial division of E. A. Lundy Co., railroad supplies. Previously secy.-treas. of Pittsburgh Cooling Tower Co. Engstrom was director of the Forrester Mfg. Co., treas. and director of Concrete Form Tie Corp., and a director of Homestead Valve Mfg. Co., Homestead, Pa. Smith was formerly of Detroit, Mich., where he installed electric refrigerators.

The company manufactured commercial ice machines, the machines having reciprocating compressors, belt driven, using methyl chloride and ammonia as refrigerants, with motors from 1/4 to 3 hp. capacity.

Zero Aire Corp.

Last known address: 510 N. Dearborn St., Chicago, Ill.

Incorporated Feb. 11, 1927 (Illinois), to acquire assets of California Refrigerator Mfg. Co., Inc. By an amendment to the charter, the company's name was changed to the Rotorite Corp. on March 6, 1934.

Officers (1927): W. M. Tippet, pres.; P. G. Jacobson, v. p.; C. W. Johnson, secy.-treas.; J. H. Kennedy, chief engr.

Made household and commercial units from 1/4 to 1 1/2 hp. Machine had rotary compressor and used SO₂.

Yukon—see Benedict & Co., Ltd.

Zero Vender Corp.

Last known address: 211 West Wacker Drive, Chicago, Ill.

Incorporated Feb. 16, 1929, (Del.). Succeeded business formerly operated as Zero Vender, Inc., (Ill.). Company continued until April 10, 1929, when the name was changed to the Bottle Vending Co.

Officers (Feb. 20, 1931): B. K. Babbitt, pres.; Livingston Ross, v. p. and treas.; F. E. Hazard, v. p.; C. J. Horn, secy. Directors: Livingston Ross, R. L. Parkinson, J. J. Meade. Babbitt was identified with the manufacturing of bottle vending machines for several years and also interested in the Abrasive Engineering Laboratories, Inc.

The company manufactured bottles, dispensing cabinets, and refrigerators, having a contract for their manufacturing with a local organization. Machines were sold outright to dealers. On June 6, 1931 Ross reported that Parkinson was then president and Babbitt and Hazard had withdrawn from organization. Operations at that time were entirely on a "selling agent" basis, machines being purchased on contract basis.

Report dated July 8, 1932 states that corporation was dissolved by the State of Delaware for non-payment of corporate franchise tax.

Zerozone—see Iron Mountain Co.

"Zicer" Refrigeration Co.

Cleveland, Ohio.

An ammonia absorption machine for household refrigeration.

Notice

Corrections and additional data pertaining to the corporate history of the refrigeration industry, also information regarding other concerns received too late for inclusion in this issue, will be published in succeeding issues of Electric Refrigeration News.

METHYL CHLORIDE

REFRIGERATION NEWS

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NRA Approves Valves, Fittings Practices Code

Refrigeration Valves Group Will Elect Majority Of Code Authority

WASHINGTON, D. C.—The National Recovery Administration last week announced its approval of a code of fair competition for the refrigeration valves and fittings industry. The code becomes effective Sept. 16.

It is supplemental to the basic code for the fabricated metal products manufacturing and metal finishing and metal coating industry.

Adopting the wage and hour provisions of the basic code, the industry will pay minimum hourly rates of 40 cents for male and 35 cents for female help in the north, and 35 cents for male and 30 cents for female help in the south. If the minimum hourly rate as of July 15, 1929, was less than these figures, the rate then in force will prevail, but will not be less than 32½ cents in the north and 30 cents in the south. The maximum work week will be 40 hours.

Sponsored by the Refrigeration Valves and Fittings Manufacturing Association, the code provides for a Code Authority of five members, one to be elected by all members of the industry, one by all members of the industry not members of the association, and three by a weighted vote of the members of the association.

N.Y. Appliance Show Opens Sept. 19

NEW YORK CITY—Second annual combined National Electrical and Radio Exposition opens next Wednesday, Sept. 19, in Madison Square Garden under the auspices of the Electrical Association of New York with 110 exhibitors scheduled to display refrigerators, radios, and other electrical appliances and apparatus from 11 a. m. to 11 p. m. daily.

Scientific exhibits featuring electrical and radio devices have been prepared by the U. S. Army, the new Federal Home Administration, New York Police department, NBC, CBS, American Amateur Radio Relay League, New York Electrical League, and others.

Two broadcasting studios to be erected in the Garden will inaugurate programs which will be linked with nearly 200 stations daily, with NBC, CBS, and local stations providing the talent. Arrangements have been made so that as many as 2,500 persons can witness each radio studio performance.

Sales Manager Named By Sparton Distributor

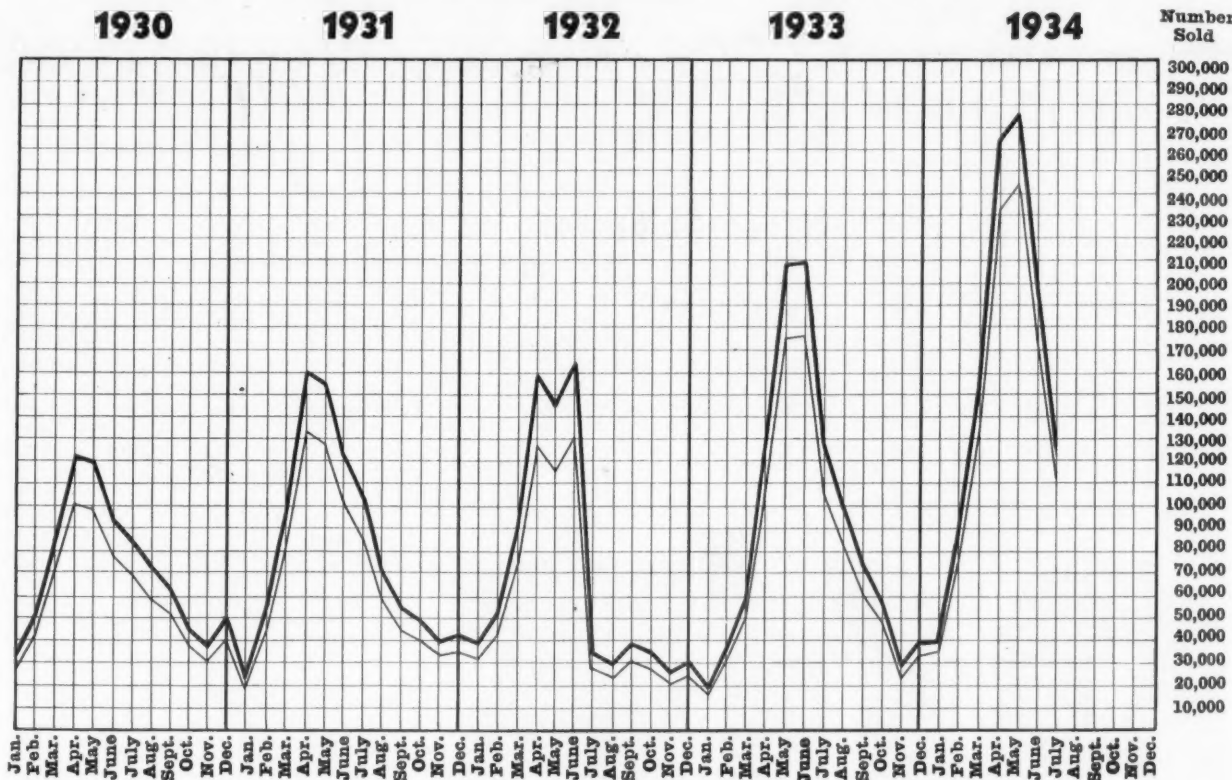
CLEVELAND—E. J. Hendrickson has been named sales manager of the Midland Radio Co., new Sparton refrigeration and radio distributor for northern Ohio.

Mr. Hendrickson was formerly connected with the RCA-Victor Co.

1,134,800 Household Electric Refrigerators Sold By All Manufacturers in First 7 Months of 1934

5-Year Record of Household Electric Refrigerator Sales

Total Factory Sales of Household Electric Refrigerators. Sales by Nema Member Companies.



7 Months Sales Exceed Total for Entire Year of 1933

By A. J. Cutting

DETROIT—Over the million mark in seven months is the unprecedented record chalked up by the household electric refrigeration industry during the first seven months of 1934 when 35 manufacturers sold a total of 1,134,800 electric refrigerators to distributors and dealers throughout the world. This estimate was made by ELECTRIC REFRIGERATION NEWS on the basis of figures furnished by industry manufacturers and other sources considered reliable.

This new all-time record surpasses the 1,080,700 units sold during the entire year, 1933, by better than 54,000, or 5 per cent, and fulfills the prophecies of industry executives who forecasted last January that 1934 would be an even more successful year than 1933. The current seven months' figure represents an increase of 44 per cent over the 786,400 units sold in the same period of 1933.

The 16 members of the Refrigeration Division of the National Electrical Manufacturers Association (Nema) who reported sales regularly, sold 1,003,150 household units during the seven months' period, making about 88.4 per cent of total industry sales. Incidentally, this performance sets a new high for Nema sales, being 10.3 per cent above the 909,055 units sold by Nema companies during the entire year 1933.

The Nema figure of 1,003,150 includes sales by the following companies: Crosley, Frigidaire, General Electric, Gibson, Kelvinator, Leonard, Norge, Potter, Servel, Stewart-Warner, Sunbeam, Uniflow, Universal Cooler, and Westinghouse. Trupar Mfg. Co., recently purchased by Winslow, Baker, Meyerling Corp., reported through May but is now no longer a member. Wurlitzer Mfg. Co. reported through June, but recently resigned from Nema membership. Nema members not reporting during 1934 to date are Apex, Jomoco, Merchant & Evans, and Sparks-Withington. Sales by these (Concluded on Page 2, Column 1)

Industry Leads in Advertising

PHILADELPHIA—Manufacturers of electrical appliances, equipment, and supplies spent \$3,548,404 for advertising space in 35 leading national magazines during the first six months of 1934, according to a tabulation made by Curtis Publishing Co., Philadelphia.

Electric refrigerator advertising expenditures led all other types of equipment with \$1,095,669, or nearly 31 per cent of the total amount. Automobile accessory manufacturers spent \$507,306, or 14 per cent, the second largest amount, while the radio industry ranked third, appropriating \$424,607, or 12 per cent.

The air-conditioning industry (Concluded on Page 2, Column 3)

Committee to Meet On Ratings Standard

PITTSBURGH—A meeting of the Joint Committee on Rating of Mechanical Condensing Units will be held here Friday, Sept. 14, according to Glenn Muffly, general chairman.

The committee is working on methods of testing and rating mechanical condensing units, both air and water cooled, which must be considered as factory assemblies including the condenser, motor, etc.

According to Mr. Muffly, considerable progress has been made and it is the hope of the committee that the project may be brought very close to conclusion at the Pittsburgh meeting, with some standard method of rating involved.

The personnel of the committee, organized under the sponsorship of the American Society of Refrigerating Engineers, is as follows:

For A.S.R.E.—Glenn Muffly, consulting engineer (general chairman and A.S.R.E. chairman); W. R. Woolrich, Tennessee Valley Authority; F. R. Zumbro, Frick Co.

For Refrigerating Machinery Association—A. H. Baer, Carbondale Machine Co. (RMA chairman); W. H. Carrier, Carrier Corp.; L. S. Morse, York Ice Machinery Corp.

For National Electrical Manufacturers Association—H. M. Williams, Frigidaire Corp. (Nema chairman); Chester Lichtenberg, General Electric Co.; L. A. Philipp, Kelvinator Corp.

Watermelon Fills TVA Chest Model—Dealer Demonstrates

BIRMINGHAM, Ala.—To deride TVA-approved chest model refrigerators, a local appliance dealer recently put a chest model, containing a large watermelon, on display in his store. The melon completely filled the refrigerator.

Attitude of the local dealers is further expressed by the statement made by the manager of a furniture company who declared that the TVA-approved chest models were only large enough to accommodate a family of two or "preferably an old maid who has a job and does a little light housekeeping on the side."

South Jersey League Show Opens Sept. 26

CAMDEN, N. J.—Electrical League of South Jersey will open its four-day electrical show Sept. 26.

More than 50 exhibitors have signed up for the show, and about \$4,000 has been appropriated for attendance promotion. About 75,000 tickets were distributed to the homes by the local utility company.

The oil burner dealers of the South Jersey district have joined with the Electrical League and are participating in the show.

Detroit Vapor Stove Sold to Borg-Warner

DETROIT—Acquisition of the Detroit Vapor Stove Co., manufacturer of both electric and gas ranges, by the Borg-Warner Corp. was announced last week by Howard E. Blood, first vice president of Borg-Warner Corp. and president of Norge Corp., another Borg-Warner subsidiary.

The Detroit Vapor Stove Co. will operate strictly as an independent Borg-Warner subsidiary and its management, organization and distributive methods will not be changed, Mr. Blood declared.

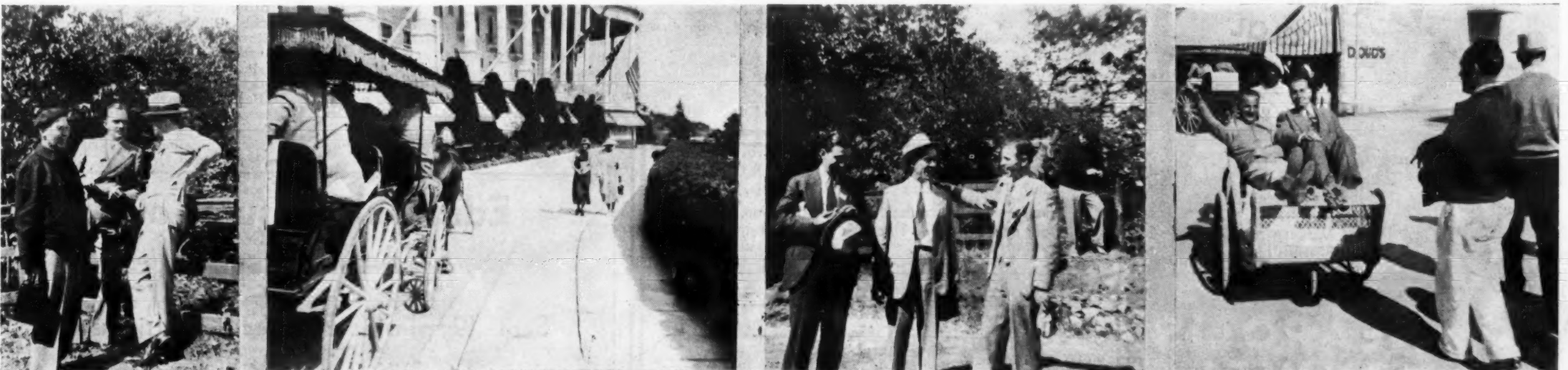
"After 30 years in the oil stove field," Mr. Blood stated, "The Detroit Vapor Stove Co. entered the gas range market in 1925 with a line possessing many patented features. Electric ranges have since been added to the company's line."

"Complete distribution was effected on a direct-to-dealer basis. The company now ranks among the five largest of nearly 300 producers of gas stoves."

"It succeeded in winning about nine per cent of the total volume in the field during 1933."

"Norge experience inspired the Borg-Warner desire to take full advantage of the trend towards complete kitchen planning. This led to the acquisition of Detroit Vapor Stove Co., which is the last major link needed to round out its kitchen appliance lines."

Kelvinator Takes Boat Party of 300 Contest Winners to Mackinac Island on Great Lakes Cruise



SPECIFICATIONS OF 440 COMMERCIAL CONDENSING UNITS THIS ISSUE

Manufacturers Sell 1,134,800 Household Electric Refrigerators in 7 Months

(Concluded from Page 1, Column 5) companies are not included in the Nema figure, but are included in the industry estimate.

Included in the Nema total are units manufactured by reporting companies for the following concerns: Fairbanks Morse Home Appliances, Inc.; Major Appliance Corp.; Montgomery Ward & Co.; Sears, Roebuck & Co.; and Truscon Steel Co.

Shipment figures for the following 15 non-Nema manufacturers are included in the industry total: Copeland Refrigeration Corp.; Dayton Refrigeration Corp.; Domestic Industries, Inc.; E. S. Mathews, Inc. (Electro Kold); Gillfillan Bros., Inc.; General Household Utilities Co. (Grunow); Ilg Electric Ventilating Co.; Landers, Frary & Clark; Liberty Refrigeration Corp.; O'Keefe & Merritt Co.; Parker Mfg. Co.; Sanitary Electric Corp.; Starr Co. (Starr-Freezer); Williams

Oil-O-Matic Heating Corp. (Ice-O-Matic); and Zerozone Refrigeration Corp.

A majority of these companies submitted figures to ELECTRIC REFRIGERATION NEWS and estimates for the others were obtained from reliable sources.

Industry sales in the United States, only, were estimated at 1,068,500 while exports to Canada and foreign countries totaled about 66,300 units. Nema domestic sales amounted to 944,511 units with exports for the period reported at 58,639 units.

Shown below is a comparison of sales by industry manufacturers and Nema companies for the first seven months of 1934 and 1933 by months and by cumulative totals.

It is interesting to note that in 1933 the totals included sales by 40 manufacturers in comparison with 35 for the current year.

Manufacturers Sales by Months for 1933 & 1934

	1934 Monthly Sales	1934 Cumulative Sales	1933 Monthly Sales	1933 Cumulative Sales
January Totals	39,100	39,100	19,400	19,400
Nema Only	34,514	34,514	16,351	16,351
February Totals	84,900	124,000	36,200	55,600
Nema Only	75,007	109,521	30,422	46,779
March Totals	153,300	277,300	59,200	114,800
Nema Only	135,470	244,991	49,823	96,596
April Totals	262,600	539,900	127,400	242,200
Nema Only	232,124	477,115	107,182	203,773
May Totals	276,100	816,000	208,200	450,400
Nema Only	244,178	721,293	175,119	378,897
June Totals	192,900	1,008,900	208,700	659,100
Nema Only	170,544	891,837	175,550	554,447
July Totals	125,900	1,134,800	127,300	786,400
Nema Only	111,313	1,003,150	107,081	661,528

Electric Refrigerators Lead Appliances In Advertising

(Concluded from Page 1, Column 5) served notice of its increasing importance by spending \$82,240 in the national publications.

Listed below is a summary of the amounts spent by each of the various electrical industry groups in all publications:

Automotive Utilities—Passenger Car, Truck and Airplane....	\$ 507,360.04
Electric Cleaners	147,405.18
Electric Clocks	19,373.25
Electric Heating Accessories...	295.00
Electric Photographic	8,190.00
Flashlights	16,255.50
Electric Ranges	10,983.97
Electric Razors and Sharpeners	1,095,669.00
Electric Refrigerators	82,240.70
Electrical Air Conditioning....	57,844.09
Electrical Machinery and	62,705.00
Mechanical Tools	354,947.86
Electrical Typewriters	220,157.99
Household—Electrical	424,607.13
Lighting	3,752.22
Radio and Radio Equipment....	392,623.40
Sun Lamps, Hair Driers, and	144,046.73
Heating Pads	
Telephone, Telegraph, and	
Sound Transmission	
Electrical—Miscellaneous	
Total	\$3,548,404.16

Norge Shipments for 8 Months 175% of '33

DETROIT—Norge shipments of household electric refrigerators for the first eight months of 1934 were 175 per cent of those for the similar period last year, Howard E. Blood, president, Norge Corp., declared last week.

Mr. Blood said that newspaper advertising was in a large measure responsible for the sustained sales gain.

EH&FA Takes to the Road



This truck carries an electric kitchen, and is being sent into rural Mississippi districts to show villagers the advantages of electrical appliances.

TVA's Truck Kitchen Will Campaign in Rural Districts

CHATTANOOGA, Tenn.—The TVA traveling electric kitchen is on its way through North Mississippi, trying something new in electric home service.

Northeast Mississippi is using the Tennessee Valley Authority's cheap electricity. TVA's subsidiary, the Electric Home and Farm Authority, sent the traveling kitchen into the counties of the TVA power area to help their homes make the most of cheap power. The kitchen is visiting county seats, small towns and hamlets.

The TVA Kitchen's first appearances at Booneville proved that it brings electricity's story to many who have not heard it before, EH&FA officials declared. Farmers from the cotton fields, farm women absorbed in every detail of the appliances, and men who entered timidly and stayed to ask about ways and costs, came to the old brick church, now the town Community House, where the kitchen was set up for its first appearances.

The TVA Kitchen is designed to meet their demands for knowledge of what electricity can do and how it works. Miss Ruth Frow, of the EH&FA domestic service staff, demonstrates the use of a newly-designed refrigerator designed for EH&FA's low cost, low payment appliance program. The kitchen equipment also includes an EH&FA-financed range and an approved automatic water heater, all mounted in a model, portable kitchen setting.

Cooper Salesmen See Entire G-E Line

CHICAGO—From all parts of Chicago and environs came more than a hundred members of the R. Cooper Jr. sales organization to the La Salle hotel here last Friday for the annual fall sales meeting.

The complete line of General Electric household appliances were demonstrated and discussed from the sales standpoint by executives from the Cooper organization and from the General Electric specialty appliance department in Cleveland.

Building the meeting around the theme of the publication of an issue of the *Cooper Bugle* devoted to a report of the recent G-E distributors' convention in Cleveland, the various skits presented attempted to dramatize what the Cooper executives learned at the Cleveland sessions.

These skits were tied together by Johnny Duncombe and "Sandy" Irvine of the Cooper organization who, as interlocutors or "commentators," introduced each skit and speaker with a bit of satirical and transitional verse.

From Cleveland came Salesmanager A. M. Sweeney, Dealer Division Manager Al Uhalt, Contest Manager Jean de Jen, and Range Salesmanager Jack Poteat. John Wicht of Bridgeport presented the new G-E washing machines. C. J. Basler, president of the Air Conditioning Corp., discussed the G-E oil furnace and air conditioner. Sam Nides, sales promotion manager of R. Cooper Jr., Inc., and G-E District Representative R. Ferguson were also on the program.

Westinghouse Has Two New Kitchens

MANSFIELD, Ohio — Two all-electric display kitchens, which will be sold to Westinghouse dealers and distributors and to utilities, have been announced by Reese Mills, manager of the range and water heater department of Westinghouse Electric & Mfg. Co.

Kitchen No. 1, the smaller of the two kitchens announced, is built in a half hexagon figure, so that the element of display may be heightened. This kitchen has dummy cabinet work, is 13 ft. long and eight ft. high.

It is built so that it is portable, easily packed and crated, and the major electrical equipment is installed at the point of display. It is so constructed that it takes standard sizes of the Westinghouse range, dishwasher and refrigerator. Other auxiliary appliances are added after the kitchen is set up, so that the idea of an impression of a complete kitchen ensemble may be given to the person inspecting it.

This kitchen is finished in two tones of ivory, harmonizing with the electrical appliances. When assembled it weighs approximately 900 pounds.

Kitchen No. 2 is of the semi-usable type, being so constructed that the cabinets may be used for cooking schools and demonstration work. It is 18 ft. long, having end cabinets for storage of vacuum cleaners, and other pieces of household equipment. The work table surface is 25 in. wide in both kitchens, and standard sizes for heights, cabinets, etc., have been closely followed, so that the figure will be as perfect as possible.

Both kitchens are wired so that the equipment may be used and the kitchen set illuminated.

Along with these kitchens the Westinghouse kitchen planning service will furnish, at a purely nominal cost, a suggested all-electric kitchen layout to the home owner interested in receiving this data.

The interested prospect has only to send in a rough sketch of his kitchen with the various dimensions of the room well marked. Then the kitchen planning service studies the layout carefully, suggesting whatever changes are necessary and then creates a work routine for that particular case, so that the preparation of a meal will be similar to the manufacturing of a product on a well-planned production line.

Sales of All-Electric Kitchen Up in Newark

NEWARK—Philip H. Harrison & Co. sold five complete G-E kitchens within the last 60 days, representing a large increase in the rate of kitchen sales, states T. E. Babson, Harrison sales promotion manager.

Of the six branches of the Harrison Co. five are equipped with G-E kitchens and the installation of the sixth will soon be made.

Prospects are secured by demonstrating G-E equipment of the Brielle Yacht Club to club guests and visitors. Equipment consists of G-E ice maker, commercial storage box, service refrigerator, air-conditioned storage room in basement, electric broiler, dishwasher, and ventilating fans. Sales have also been made through demonstrations of the G-E kitchen installed in Harrison's home in Maplewood.

BOOK

Tells the Complete Story of Refrigeration Control

THIS new book, *The Three R's of Refrigeration Control*, has been especially prepared for Refrigeration engineers, dealers, salesmen and service and installation men. It explains the requisites and functions of the various refrigeration and cooling controls, and tells how these modern controls are built to stand up under overloads and conditions of damp and corrosive atmospheres that are peculiar to refrigeration. This valuable book is yours for the asking. The coupon below will bring it to you.

AIR CONDITIONING CONTROLS

The many applications and exacting requirements of air conditioning demand perfect control... There is a Minneapolis-Honeywell Control System for every air conditioning or cooling need. Each individual control is designed to accomplish its particular function with characteristic Minneapolis-Honeywell accuracy and efficiency, and to operate in perfect harmony with other controls comprising the system... For complete satisfaction in meeting any desired air conditioning requirement, recommend and install Minneapolis-Honeywell controls.

MINNEAPOLIS-HONEYWELL REGULATOR COMPANY
2807 Fourth Avenue South, Minneapolis, Minnesota
Please send me, without cost or obligation, a copy of your new book, *The Three R's of Refrigeration Control*.

NAME _____
COMPANY _____
ADDRESS _____
CITY _____ STATE _____

MINNEAPOLIS HONEYWELL

Control Systems

Editorial Features of Coming Issues

Sept. 19—Inside the Electric Refrigerator

Sept. 26—Winter Air Conditioning

Oct. 3—Department Store Merchandising

★ **97%** ★

OF THE G-E REFRIGERATORS IN USE 5 YEARS

*are still giving satisfactory service
to their original owners!**



*From a survey made this year by R. L. Polk & Co. It does not include those General Electric Monitor Top Refrigerators still giving satisfactory service but which have been disposed of by their original owners.

SATISFIED CUSTOMERS are the refrigerator retailer's greatest business asset. The unparalleled performance record of General Electric refrigerators is one of the chief reasons for the success enjoyed by G-E dealers. The famous Monitor Top sealed-in-steel mechanism has made this record possible. It is unmatched for dependable, trouble-free service. It has earned its right to the 5 years' protection against failure which General Electric now gives for \$5—only \$1 a year.

Customer satisfaction gained from faithful year-after-year performance means two vital things to G-E retailers. First it means more and easier sales. Second it means protection to net profits because servicing is reduced to the absolute

minimum. That is why the G-E franchise is so much sought after. If you are not already a G-E dealer, you are invited to share in the preferred profits made possible through the medium of satisfied General Electric refrigerator users. Write or wire for details of the G-E franchise. General Electric Co., Specialty Appliance Sales Dept., Sec. DF91, Nela Park, Cleveland, Ohio.

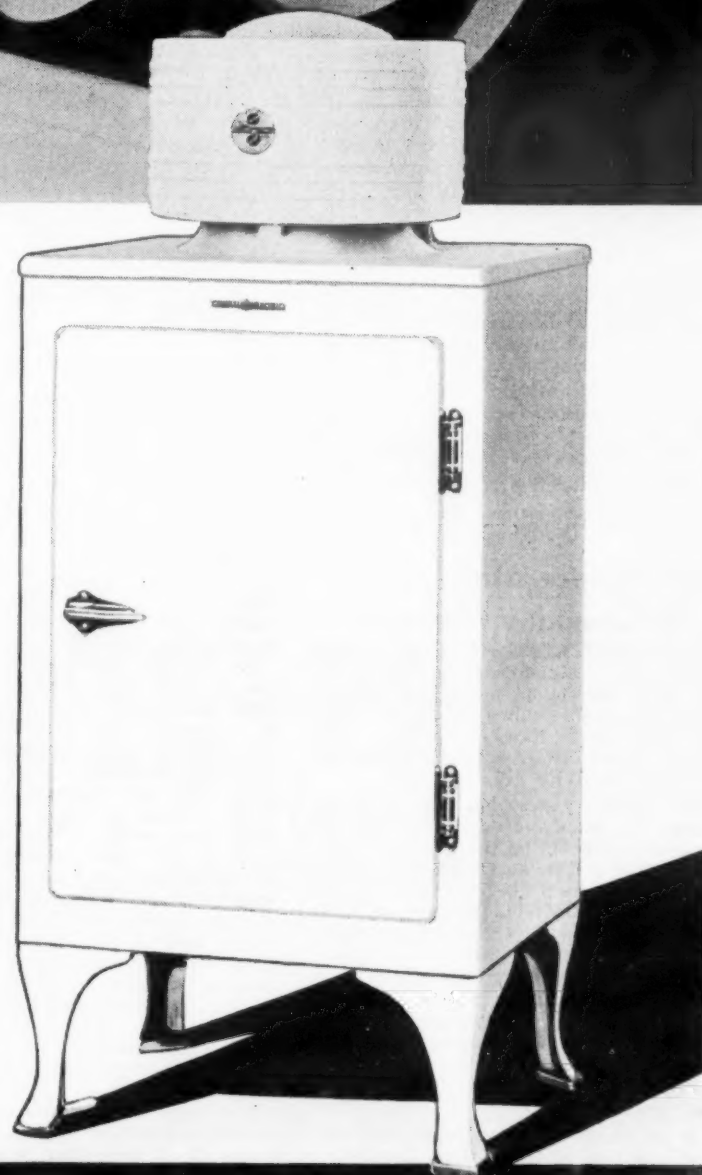
A G-E REFRIGERATOR FOR EVERY MARKET!



With the Monitor Top, Flat-top and Lifttop models General Electric dealers can offer a refrigerator for every size family, every income! **\$77⁵⁰**
Prices as low as . . . plus freight



GENERAL  ELECTRIC
ALL-STEEL REFRIGERATORS



PERSONALITIES

By George F. Taubeneck

Kelvinator Cruise

When the steamer *Eastern States* docked at Mackinac Island, Mich., last Wednesday, some 300 of the country's leading merchandisers of electric refrigeration—all guests of Kelvinator Corp.—came ashore to play and relax for a day.

These men, winners in Kelvinator's "Barrells of Fun" contest, had six days of rest and vacation aboard the *Eastern States*. Two days and one night they spent in Chicago, visiting A Century of Progress Exposition. Add to that their day in Mackinac, subtract these two stopovers from the six days' total, and one arrives at the sum of three days and five nights of cruising the Great Lakes in a chartered boat.

Salesmen, dealers, distributors, public utility men, and practically the entire factory executive personnel were aboard. Two morning sales sessions were held; the rest of the time was reserved for pastimes of chance and skill, conviviality, and talking business.

In Chicago Thursday night the party took over for the evening the Malibu Club at the Hollywood concession of the Fair. At Mackinac a golf tournament, a North vs. South baseball game, and touring parties were organized. The trip lasted from Sept. 4 to Sept. 9.

Four Georges

At the table we drew the first night there were four Georges. For four men of a group of six to be named George was, we agreed, an unusual coincidence. In addition to the writer and GEORGE WILCOCK of the factory personnel, there were GEORGE F. SCHUCK of the Schuck Electric Co., Philadelphia dealer, and GEORGE F. SANDER of the Manchester, N. H., Public Service.

It reminded somebody of the story that GEORGE MASON, president of Kelvinator, claims also to be president of the S.P.C.P.G.—which, in translation, means the Society for the Prevention of Calling Pullman Car Porters "George."

Eldest George at the table, Mr. Sander of New Hampshire, is a bitter opponent of the New Deal. He is an old-timer in the industry, and has had enough experience to know how some of the implications of the New Deal are likely to affect adversely the fortunes of the electrical business. Also, he has been observing things long enough to know that eventually somebody has to pay for extravagance.

Mr. Schuck was inclined to agree with him. A dealer in many appliances—refrigerators, washing machines, oil burners, water heaters, and electric ranges included—he has a sales territory located in a well-to-do Philadelphia suburb. He finds the reaction among his clients decidedly negative. Business, though, has been good, he admits—particularly washing machines and refrigerators. Last year, helped by the stimulus of the Philadelphia Electric Association's model range promotion campaign, he sold a flock of L. & H. and Hotpoint ranges.

On the other side of the question were the two gentlemen at the table not named George: S. W. ALLSTOCK of the Florida Power Co., Clearwater, Fla., and FRANK CHRISTIANS, manager of Electric, Inc., Philadelphia, appliance dealer.

Mr. Allstock stated his feeling succinctly and laconically when he said: "This year they're eatin'. Last year they weren't."

In a moment he added that Florida had had a wonderful year "all around," that people down there had money in their pockets, and that "most everybody was happy and uncompaining."

From Service Man To Company Manager

FRANK CHRISTIAN is an unusual young man. He doesn't look like he had been tackle on a leading professional football team—which he was. He does look like he might have played guard on a Swarthmore College eleven—which he did.

For eight years he ran a boys' camp. Then, deciding to utilize his engineering training, he got into electric refrigeration service work. After a time he became service department manager of Electric, Inc., which then operated six stores in Philadelphia and suburbs, giving 24-hour service.

Under this set-up Electric, Inc., lost money steadily. The stockholders deposed the then incumbent of the manager's chair, and elevated Frank to that position. An unusual move, making a service man the company manager, eh wat?

Well, sir, first thing Frank did was close up five of the stores. Operating entirely out of one store, serving a

more restricted territory, Electric, Inc., is now making profits.

In addition to Kelvinator refrigerators, Frank sells Kelvinator oil burners, washing machines, and gas ranges. His territory includes a large hunk of Philadelphia's mill section. The textile workers' strike, he figures, will probably hit him right between the eyes.

Frank just took on the oil burner line a short time ago, and has been selling about four a week. He expects to sell around 150 before the year's end.

Like the others at the table, Christian has found the washing machine business plenty hot during the last two years. First reason is that reduced incomes have driven many housewives back to the washboard and tub, because they couldn't afford laundry bills. It doesn't take much of this kind of back-breaking labor to convince a housewife—and her husband, too—that an electric washing machine is a by-golly-and-stuff necessity.

To this clientele Christian sells reconditioned washing machines he has taken in as trade-ins on new models. He accepts your old washing machine as down payment on a 1934 machine, repairs and refurbishes it (including a swell new paint job), and sells the reconditioned used washer at a bigger profit than he makes on a new machine.

The replacement market for washing machines is something to shout, jump up-and-down, and clap your hands about, agreed the whole table.

Oh, yes; we said Frank Christian had a good word for the New Deal. He likes the Philadelphia Retail Code Authority. Says it is highly efficient in enforcing fair practices, and has been particularly effective in eliminating dishonest and misleading advertising (being especially meticulous about the advertising of time payment terms).

Porcelain Enameling Mfg. Industry
612 North Michigan Ave., Chicago
Editor:

What in hell has become of Taubeneck's column?

For a few issues I had assumed that there was so much news in the industry it had been crowded out, but after my usual cover-to-cover reading of the News—in this instance the Aug. 8 issue—I have become sufficiently curious to ask that you let me know when Mr. Taubeneck's column will again appear.

I am one of those persons who pays \$3.00 a year for the News, and have been doing so for the past four years; and I am frank to say that without that sparkling human interest and those unusual photographs which used to appear, your good publication is not what it used to be.

May I have an answer?

GEORGE P. MACKNIGHT.

Landsheft & Bonning, Inc.
810 Liberty Bank Bldg., Buffalo
Editor:

We are not in the electric refrigeration business, so our opinion may not be of very great importance—but what has become of Taubeneck's breezy department on Personalities and Current Events?

Somehow, we feel that this section gave a personal touch to your paper that now is lacking.

Has it been abandoned just temporarily or is its omission to be permanent?

J. C. BONNING.

General Household Utilities Co.
Chicago, Ill.
Editor:

Am writing to inquire what has become of the chap named "George Taubeneck" who used to write for your paper.

For several years now, when ELECTRIC REFRIGERATION NEWS came to my desk, no matter what I was engaged in—trying to design a new poster or revising an advertisement for the *Saturday Evening Post*, I put all else aside for the moment to see what "G.F.T." had to say about it. Otherwise, how could I know just what type of girl Bette Davis turned out to be when she started out to endorse electric refrigerators, what sort of fan dancers were sitting on salesmen's laps at the Blue Goose Night Club, who was writing the best refrigeration ads, what sort of a man Joe Dokes, General Sales Manager of Oomp & Co. really was—whether he cut his hair himself by using a looking glass or whether it just naturally grew that way.

I wonder if it is just plain laziness or don't-carefulness that has made you leave all of your fans hanging on the end of a rope. The usual thing is to

The no-down-payment policy, chorused the table with one mighty voice, will be ruinous to dealers if kept up much longer.

Electric Ranges Can Be Sold

At another table the next night, the conversation turned to electric ranges. HAROLD H. MAYES, salesman for the Virginia Public Service Co. of Alexandria, Va., declared that ranges are really easy to sell—if you spend enough time learning the story of better cooking by means of electricity.

Mr. Mayes has sold 30 ranges himself this year.

Virginia Public Service offers a 3½-cent rate to home users, which isn't exceptionally low for a range rate.

Down in St. Louis range users get a 2½-cent rate. J. A. ELAM, head of the refrigeration department of the Union Electric Light & Power Co., told the group. Moreover, under the direction of C. E. MICHEL, that utility has been staging a strong range promotional program.

Any electric range sold in the metropolitan St. Louis territory will be installed by Union Electric free—whether it is sold by the utility or by a dealer. The utility will do nothing that dealers can't do, too. That's a policy which is earning Union Electric plenty of good will down there.

Before any merchandising program goes into effect, Union Electric officials call in all the dealers in the territory, and they all talk it over. If the program has any features which are objectionable to the dealers, those features are eliminated. If, on the other hand, any of the dealers can offer suggestions to help fill out the program, these are weighed and—if approved by this "town meeting"—are embodied in the program. How's that for dealer-utility cooperation?

Also at this table was JOSEPH KENSKI, star salesman for the Alderson Electric Co., which operates two stores in St. Louis. This dealership sells, in addition to Kelvinator, Philco and RCA radios, ABC, Maytag, and Easy washers, Eureka and Graybar vacuum cleaners.

Mr. Kenski wouldn't be in any other business in the world, he claims.

Not So Happy

Up in Wisconsin there is a dealer who isn't so happy about his relations with the utility as dealers seem to be in St. Louis. His name is A. W. SCHEIN, his dealership is the Miller-Schein Co. of Stevens Point, Wis., and in this town of 15,000 he has sold 40 Kelvinators this year.

The utility up there sells Westinghouse, and is a bitter competitor, declares Mr. Schein. Better terms are offered by the utility, and its salesmen will try to take sales he has initiated away from him, he charges.

A. J. R. SEYFERT of the Morley Murphy Co., Kelvinator distributor in Green Bay, Wis., agrees with Mr. Schein. As the distributor's field man calling on that territory, he has run across numerous instances—which he will recite to you—of tactics on the part of central station salesmen which are anything but cooperative.

A World's Record

Speaking of the utilities, CAMPBELL WOOD, who heads up central station activities with Kelvinator, had inveigled a number of "higher-ups" from public utility ranks into joining the party.

JOHN PAUL LUCAS of Charlotte, N. C., vice president of Southern Public Utilities, was one of these. A former newspaperman, he has a keen sense of human values and a feeling for human relationships. Silver-templed, smoothly dressed, wearing eyeglasses, slim and straight, urbane in manner, he fits physically his role of utility executive handsomely.

Other Southern Public Utilities men aboard included L. H. ADAMS, assistant to the president; JOHN BROOKSHIRE, branch manager at Anderson, S. C.; K. K. GARRETT, branch manager at Greensboro, N. C.; and the following salesmen: FRANK SNYDER and HERBERT WINECOFF of Winston-Salem, N. C., and BOB WATKINS of Charlotte, N. C.

W. G. THOMAS, president of the Mill Power & Supply Co., which is the buying agency for Duke Power (holding company for Southern Public Utilities and other properties) was also along.

Under the direction of Mr. Lucas, Southern Public Utilities recently set what CAL MITCHELL (Kelvinator

district manager daown theah) claims is a world's record for a sales campaign—they sold 4,160 Kelvinators, 90 carloads, in nine weeks. Territory worked in this campaign were the Piedmont Carolinas which, being interpreted, means the western part of North Carolina and South Carolina.

Mr. Lucas declares that employee cooperation was the secret of success in this campaign. Practically every man and woman on the payrolls engaged in direct selling during the nine weeks.

Pardon Their Southern Accents

Other Southerners of whom the aforesaid CAL MITCHELL was particularly proud included distributors WALTER MOORE, president of Moore & Stewart, Inc., Gastonia, N. C., and PAUL FUQUA, president of the East Tennessee Electric Co. (not a public utility) in Knoxville.

One of Mr. Fuqua's best Kelvinator dealers is the Miller Bros. department store at Chattanooga, which is the biggest refrigeration outlet in town outside of the power company, which sells Frigidaire. This utility, incidentally, installs and services the Kelvinators which Miller Bros. salesmen place in homes.

In Nashville Mr. Fuqua has lined up the Cain-Sloan department store. In Knoxville he has his own retail operation.

Among his feats are the selling of hundreds of Kelvinators to the United States government for workmen's homes, including 164 for the model homes at the Cove Creek, Tenn., development. Incidentally, the government bought big model NB Kelvinators, instead of the special TVA models!

Mr. Mitchell also had some nice things to say about PAUL JONES of Welch, W. Va. In this small coal-mining town Mr. Jones has sold over 1,400 Kelvinators—which is 600 per cent of the "territory's worth" (what the statisticians out on Plymouth Rd. figure should be sold in that particular territory, taking all known factors into consideration.)

Big League Pitcher

Hero to many of us on the trip was DEWEY MARSHALL of Roanoke, Va., who is wholesale manager for Thurman & Boone, Kelvinator distributorship in that territory.

Not so many years ago Mr. Marshall was a pitcher for the Cincinnati Reds (now owned by POWELL CROSLLEY, JR.) and the Boston Red Sox. He was a good one, too; and has a fine record.

A whopping big fellow, he looks like a natural athlete. He played a good game of golf Wednesday afternoon on Mackinac Island.

Vance Woodcox — As Advertised

In a little leather-bound booklet given to each member of the party were a few pages devoted to Kelvinator officials, with a picture of each, together with a little personality sketch.

Part of the legend beside the picture of Sales Promotion Manager VANCE WOODCOX read: "If you get into a poker game with Vance, play 'em low and close to your chest, for he's plenty tough."

Vance hadn't seen the booklet when he first got on the boat, but most of the members of a group which started a 10-cents-a-white-chip game on deck B as soon as the propellers started churning had seen it.

Hence, when Vance, eyes sparkling, asked if he could sit in on the game, there were some significant glances exchanged around the table.

But nobody said a word. The cards were dealt with a well-see-how-good-this-bird-is attitude, and the game was on.

Still innocent of his advance reputation, Vance proceeded to win about \$15 in half an hour. Which meant he had to be in most of the pots.

Vance was, the poker addicts agreed, "as advertised."

Henry Burritt Masters A Few Adverse Odds

Another Kelvinator executive who could show the boys how 'twas done (we're not mentioning, at the moment, President GEORGE MASON and his skill with the Polynesian dominoes) was HENRY BURRITT, vice president in charge of sales, who picked in advance the winner of each bout in the amateur boxing tilts on board Tuesday night.

Mr. Burritt picked his men before they were introduced. Invariably after the introduction it would seem to everybody that Mr. Burritt had missed that one by a mile and a furlong. The other fighter was always a Golden Gloves champion, bigger, or something equally worth betting on.

But Mr. Burritt's choices had a way of making the champs look silly in the last round, and his men won every time.

O. K., Gentlemen, We'll Go Back to Work Again

write a letter to ELECTRIC REFRIGERATION NEWS and cancel your subscription because of something that appeared in the paper, but in my case I am going to write a letter to ELECTRIC REFRIGERATION NEWS to cancel my subscription unless "G.F.T.'s" page is reinstated pronto.

Yours for more and better stories by Taubeneck—

DUANE WANAMAKER,
Advertising director.

Hoosier Electric Refrigerator Corp.
943 Meridian St., Indianapolis
Editor:

I notice that you have dropped the personal column in ELECTRIC REFRIGERATION NEWS—the one containing brief mention of personalities in the industry and which mimicked the Brisbane and McIntyre style of writing.

This was certainly interesting, and I trust that it will not be omitted permanently.

H. E. WARREN,
Manager, sales promotion division.

Westinghouse Electric & Mfg. Co.
200 East Fifth St., Mansfield, Ohio
Editor:

For the past two or three weeks I have noticed a distressing lack of motive in a publication which I have always felt was one of the best, namely, ELECTRIC REFRIGERATION NEWS.

Inasmuch as you are connected with this publication, remote as the acquaintance may be, I thought you might be able to tell me to what the absence of your column by G.F.T. should be attributed. If it is lack of material, and I can hardly believe that such would be the cause, I would gladly take a few minutes out of my weekly production chart to browse around in an effort to add what little I could to revive the column.

If I am the only one noticing the absence of this column, just forget the whole issue, but if your other reader has also commented on it, please reconsider before you drop it entirely, as I will consider that its absence up to this date is just an experiment.

R. O. RICHARDS.

Westinghouse Electric & Mfg. Co.
Mansfield, Ohio.
Editor:

A gang of us here were wondering what happened to the page you used to run, so agreed we would write to you and complain because it had been discontinued.

Frankly, George, until you sort of went "hay-wire" on the World's Fair, I considered your page the one outstanding feature of any trade journal that comes to my attention. The fact is, I know many people personally who never read anything in the ELECTRIC

REFRIGERATION NEWS except the front headlines and your page.

There are too few human features in all trade journals. It seems cruel to say that trade journals have too much of a tendency to be all alike, but the fact is, the new articles in ELECTRIC REFRIGERATION NEWS can't be much different from an article in any other magazine covering the same subject. Editorial and special features, therefore, make the outstanding difference. Many trade journals have good editorials, and many of them report the news very well. Without features, such as yours, however, they make very dry reading.

This is just my own personal opinion. It may be that your page was dropped through the request of the Police Department or because you figured on getting married and would not have time to write it. Anyway, even if you do not want to publish your page and will get it out in type-written form and send it to me, I know 15 or 20 men who will read it.

V. E. VINING,
Department store supervisor,
Household refrigeration sales.

Stewart-Warner Corp.
1826 Diversey Parkway, Chicago
Editor:

For some time now I have been wondering what the devil has happened to the News that has resulted in it being a less comfortable paper to read. I have finally arrived at the answer, for I was looking over some old issues a couple of days ago and ran across your old page that really made up the personality of the paper, and realized that that was what was missing.

Why don't you get back into your old time harness and put that page to work for you again—and if this is a cockeyed idea you are perfectly free to say so.

CHAS. R. D'OLIVE,
Refrigeration sales manager.

General Electric Co.
Nela Park, Cleveland, Ohio
Editor:

What has become of the "Expansion Valve" column in the News? That used to be the first thing I would turn to, and I assure you I'm an avid reader of your sheet. Somehow or other, that column, at least to my way of thinking, introduced one to some of the men whose names you were constantly seeing in your columns.

Columns such as the "Expansion Valve" lift trade papers out of the trade paper class and make them almost a house organ of the industry which they represent.

A. L. SCAIFE,
Manager, retail division.

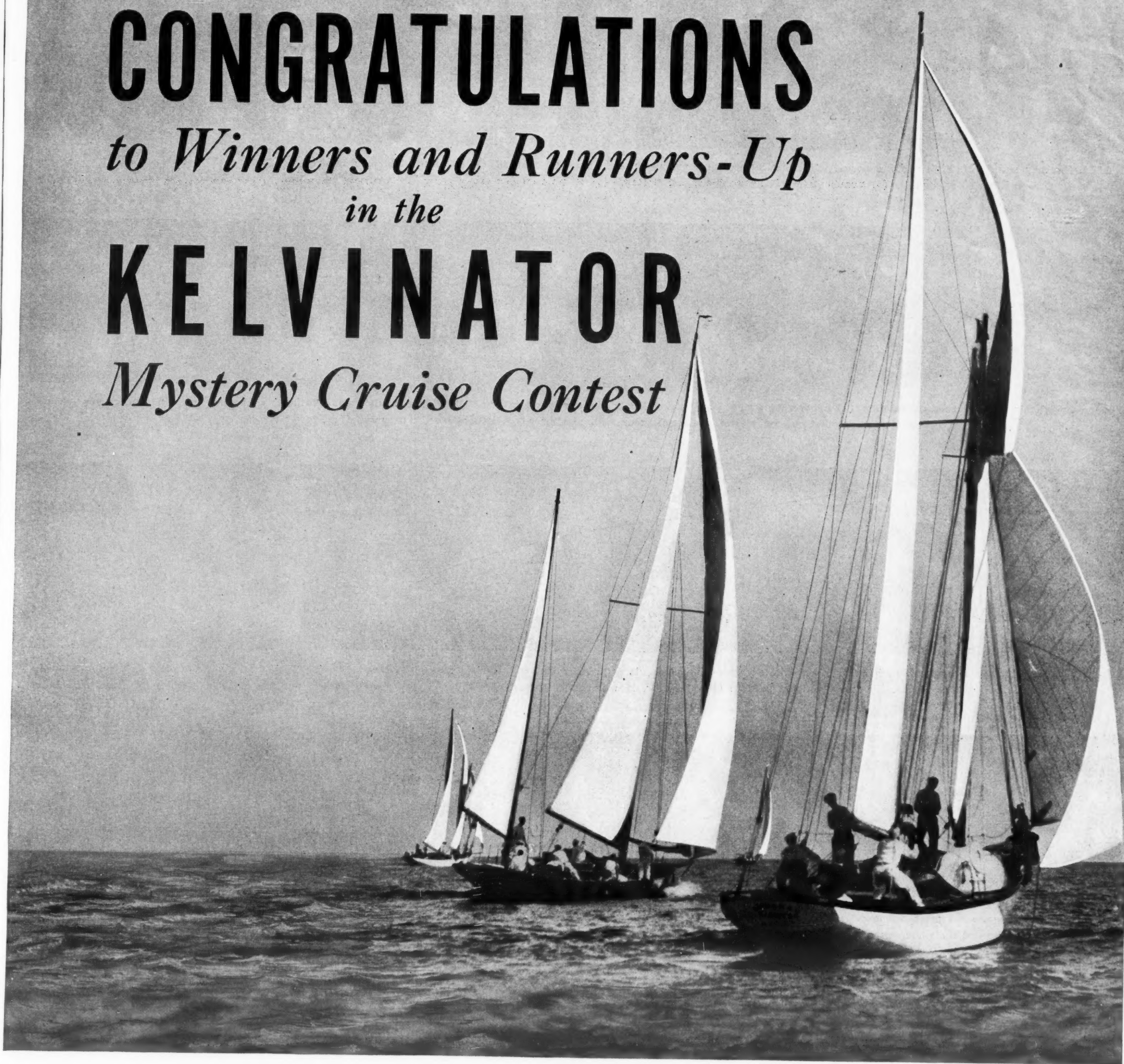
CONGRATULATIONS


to Winners and Runners-Up

in the

KELVINATOR


Mystery Cruise Contest



 Last week 210 retail and wholesale salesmen, winners in the biggest and most successful sales contest Kelvinator has ever conducted, embarked on the promised Mystery Cruise. To these prize-winners, our congratulations.

These winners did not win "hands-down." In most cases they had to fight each inch of the way to victory. The success of our contest was due just as much to the dogged tenacity of the men who fought and lost as to the efforts of

the men who won. So to the losers as well as the winners, our congratulations for a good fight—and our thanks.

Winners and losers together make up—in our opinion—the most loyal, hardest hitting sales organization in the industry. And—in the next contest—fair weather and a following breeze for everybody. . . . KELVINATOR CORPORATION, 14250 Plymouth Road, Detroit, Michigan.  Factories also in London, Ontario, and London, England. (935)

-Kelvinator-

'Camp Specialty Appliance VIII' Provides Annual Open Forum for G-E Distributors



(1) A. M. Sweeney and C. M. Ripley of Schenectady. (2) Al Uhalt (right) demonstrates the sales pilot coach. (3) Bill Burton of St. Louis and Art Scaife await the garbage man. (4) Gordon Craig of Boston arises late. (5) Commentators Bill Chandler and Gus Hart. (6) Ralph Cameron (right). (7) Walter Daily and Frank Wolf, Buffalo distributor.



Scenes from playlets which enlivened the meeting. (1) Laboratory scene from the dishwasher presentation. (2 and 3) Walter Daily's skit explaining the coming promotion program. (4 and 5) Dramatic moments from the playlet, "A Rendezvous with Death," which symbolizes the dangers of the lowly dishrag.



(1) Judson C. Burns (left), famous Philadelphia distributor of electrical appliances, talks things over with Cedric Smith of Cleveland. (2) T. W. Driscoll, Carolina distributor, converses with Ralph Cameron head of the department store division. (3) "Squire" Head, Indianapolis distributor, gets a shine. (4) More "shine-em-up," with Harry Mealey of Cleveland (center).



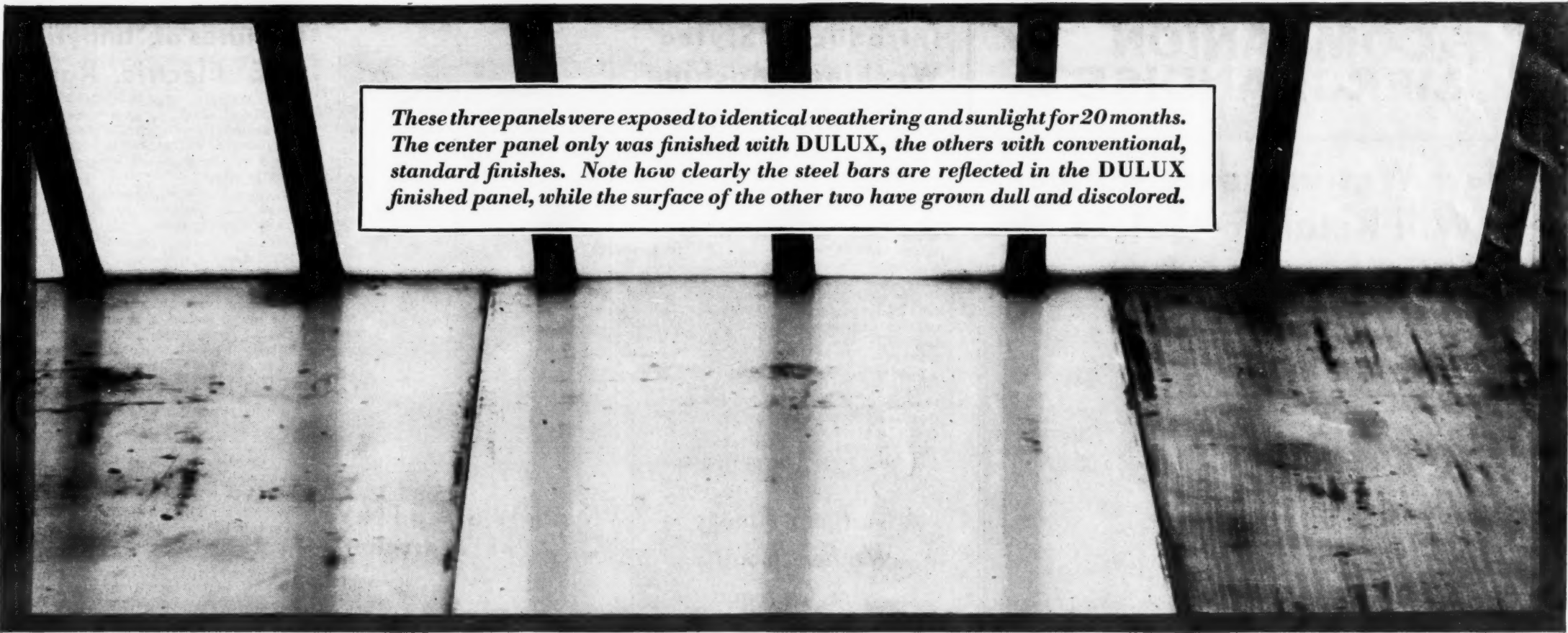
(1) Manager P. B. Zimmerman gives the low-down to W. D. Alexander (right), Atlanta distributor. (2) Mr. Zimmerman (facing the camera) in another session. (3) Phil Harrison of Newark (left) claimed he had the whooping cough. (4) Getting in on the ground floor—the pert gentleman at the extreme left is Bill Thompson of Boston. (5) "Bo" Bogart (left), Toledo.



(1) Carl Snyder presents the General Electric dishwasher. (2 and 3) Salesmanager A. M. Sweeney addresses the group. (4 and 5) Ditto Vice President T. K. Quinn. (6) Distributors having fun with the General Electric Workshop. This newest of the General Electric specialty products "caught on" immediately with the selling organization.



(1 and 2) Frank Wolf of Buffalo and Phil Harrison of Newark examine a pair of wooden dice Phil made on the G-E Workshop. (3) Syd Caswell (left) anxiously queries the bartender as to the remaining supply of Canadian Club. (4) This one must have been good—Turner Barger of the Cincinnati and Columbus distributorship, on the far right, leads the laughter.



These three panels were exposed to identical weathering and sunlight for 20 months. The center panel only was finished with DULUX, the others with conventional, standard finishes. Note how clearly the steel bars are reflected in the DULUX finished panel, while the surface of the other two have grown dull and discolored.

One more reason why 800,000

HOUSEHOLD MECHANICAL REFRIGERATORS

have been finished with

DULUX

REG. U. S. PAT. OFF.

HOW'S THIS for a convincing record of success? Eighteen months ago (a short year and a half) DULUX was used as a finish on refrigerators for the first time . . . today more than 800,000 household mechanical refrigerators have already been finished with DULUX!

Before du Pont was ready to offer this new refrigerator finish to the trade and the public, rigorous tests were conducted to prove without the slightest doubt that DULUX was a superior, longer-lasting, more desirable finish.

Countless panel tests were made, exposing various finishes to sun and weather for long periods of time. Always DULUX came through with flying colors—just as it did in the test illustrated above.

A DULUX-finished panel was struck quick, sharp blows with a hammer. The finish bent with the metal but did not crack or chip or flake.

In Florida a refrigerator door, finished with

DULUX, was greased every morning for 13 *entire months* and a section of it never cleaned until the end of the test. After being wiped clean, the lustrous white beauty of the original surface returned immediately—not a sign of rusting, peeling, cracking, or softening!

These and other tests convinced du Pont. But how about the refrigerator manufacturer, the dealer, the housewife? Here's the best proof that DULUX satisfied them, too: *Eighteen months after DULUX was used as a refrigerator finish for the first time, more than 800,000 household mechanical refrigerators have been finished with this superior, new DULUX!*

Any housewife will appreciate knowing that the pure, glowing white of the DULUX-finished refrigerator on your floor will remain a pure, glowing white for years to come in her kitchen at home. As white as a blanket of newly fallen snow. As white as the whitest of ermine. "The whitest white you ever saw." Make this fact a real sales help in your talk with her.

You can obtain practical sales information from a booklet we have prepared, called "DULUX for Refrigerators." Send for your copy now by writing to E. I. du Pont de Nemours & Co., Inc., Finishes Division, Wilmington, Delaware.

These facts

ABOUT DULUX HELP YOU SELL REFRIGERATORS!

1. *A hard but flexible and tenacious finish that does not chip or crack under hard blows and surface tension. It is the result of a new, elastic vehicle—a du Pont development.*
2. *A durable finish that resists moisture and protects against corrosion.*
3. *A finish with exceptional resistance to household oils, greases, acids, and abrasives.*
4. *A beautiful finish with a texture, depth, and gloss unknown in other finishes.*
5. *A finish with almost perfect whiteness which remains under long outdoor or indoor exposure.*



DULUX

REG. U. S. PAT. OFF.

for refrigerators

COMPANION MERCHANDISE

New Westinghouse Range Will Retail for \$61.25



MANSFIELD—Westinghouse Electric & Mfg. Co. has introduced a new electric range, selling for \$61.25 f.o.b. Mansfield, designed to tap the \$1,000-\$2,000 income market. (See above.)

The range has three open coils (two 6-in. 1,000 watt and one 8-in. 1,800 watt) and a 2,000-watt unit in the insulated oven.

A radio type dial on the oven top regulates the direct action automatic

temperature control without the usual intermediary relay.

The range is finished in Dulux. Main body of the range is welded into one sheet of steel at one time, in the manner of modern automobile body construction.

Presentations of the range will be made to dealers at a special series of dealer meetings to be held throughout the United States.

G-E Equipment Placed In Two Model Kitchens

NEW YORK CITY—The redecorated and refurbished "House of Years," model home of W. & J. Sloane, which was reopened September 4, is equipped with a complete G-E kitchen installed by Rex Cole, Inc., Metropolitan G-E distributor.

Cole will also install G-E equipment in the model kitchen of the New York Herald-Tribune institute.

Scheel to Direct Exports of Kingston Radio Co.

KOKOMO, Ind.—Harry J. Scheel, formerly director of exports for Majestic radios manufactured by Grigsby-Grunow Co., has been appointed director of all export business for the Kingston Radio Co., Inc., of this city.

Mr. Scheel will open the Kingston export office by Oct. 1 at 431 S. Dearborn St., Chicago.

Montgomery Ward Introduces 'Styled' Washing Machine

CHICAGO—A washing machine in a modernistic design very similar to that which has characterized electric refrigerator models introduced in the last two years has just been announced by Montgomery Ward & Co.

The washer has rounded corners and edges, and in addition it is embellished by tubular chromium columns which extend up the front vertical edges of the machine and flow into the chromium top.

The new semi-concealed drain outlet and protecting hoods for the casters are also designed to harmonize with the modern lines of the washer.

Features of the machine include a double-tub design, with air space between tub walls to hold the temperature longer; finger tip washer and drain control on top of the washer, new forward and back roll control, and the Ward tri-vane perforated agitator.

Advertising Abuses in Washer Industry Are Outlined

WASHINGTON, D. C.—First instance of an industry asking amendment of a code already in effect to include certain ethical advertising standards occurred recently when public hearing was held on the application of the code authority for the washing and ironing machine manufacturing industry for a code amendment to prohibit misleading advertising.

Present abuses in the industry were outlined by J. P. Bohnen, executive secretary of the American Washing Machine Manufacturers Association, and G. F. Brewer, representing the code authority.

Among proposed modifications to the code are the following:

1. All advertising prohibited (whether printed, radio, display, or any other nature) which "is misleading or inaccurate in any material particular."

2. Prohibition against "in any way" misrepresenting any machines of the industry, with respect to trademark, grades, quality, quantity, origin, size, substance, character, finish, material, content or preparation.

3. Prohibition against "in any way" misrepresenting the product of any member relative to Credit terms, policies, services, "or the nature or form of the business."

4. "No misrepresentation of a character calculated to mislead the uninformed or casual reader shall be used. All statements made in advertising or sales promotion shall be complete and so phrased as to convey to the casual and uninformed reader the full and complete facts."

5. Prohibition against advertising and sale activities in connection with products which are not intended to be openly and freely sold, "with the object of attracting customers."

6. "Neither direct nor indirect use shall be made of competitive apparatus for comparative purposes in connection with sales and advertising."

7. Prohibition against the granting of advertising allowances "to be expended by customers to whom such allowances are given on advertising which fails to conform to this provision."

8. "No manufacturer shall sell his products to or through any customer who in the resale of such products does not conform to the provision of this paragraph."

Norge Washer Presented At Moser & Suor School

KANSAS CITY—Despite temperatures above the 100-degree mark, capacity crowds of housewives have attended cold cooking schools held by Norge dealerships in this territory under sponsorship of Moser & Suor, Inc., Norge distributor here.

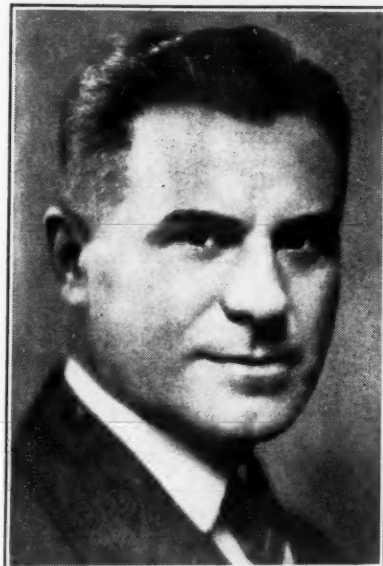
Miss Grace Campbell, the distributor's home economist, is conducting the series, which is being used not only to promote refrigerator sales, but to present the new Norge washer line, according to M. S. Tinsley, manager of the wholesale company.

G-E Has Display for Use at County Fairs

CLEVELAND—For use by distributors and dealers at county fairs, General Electric's sales promotion department has available a striking background display, 8 ft. high and either 20 or 30 ft. in length. The display consists of three G-E refrigerators against a two-tone background of modernistic design.

Centered in front is a huge G-E trademark mounted on a base in harmony with the backdrop. Cost for use of the display is \$50 per week, user to pay freight one way.

Joins Electrochef



W. R. WINANS

Winans Will Head N.Y. Office of Electrochef

DETROIT — W. R. Winans, for nearly 10 years in charge of the public utilities division of Frigidaire Corp., is now a member of the sales staff of Electromaster, Inc. Gerald Hulett, vice president and general sales manager of Electromaster, announced last week.

Mr. Winans is opening a New York office for the company, and from that point will contact power companies in various parts of the country.

Model Home Equipped By Oklahoma Utility

OKLAHOMA CITY, Okla.—An all-electric kitchen, a completely automatic air-conditioning system, and an electrified laundry are the contributions which the Oklahoma Gas and Electric Co. is making to "Aunt Susan's Home," a model modern house which is being constructed here. It was scheduled to be open for inspection Sept. 9.

Kitchen appliances include two electric refrigerators (one for the butler's pantry), an electric range, an electric dishwasher, a mixer, a toaster, and a waffle iron.

A duct-type air-conditioning system with special controls adapted to the quick changes in the Oklahoma climate has been installed. The system provides for cooling both by outside air (when conditions permit) and a mechanical refrigeration system.

Controls & 'Gadgets' Features of 'Imperial' G-E Electric Range

CLEVELAND—A new deluxe flat-top automatic electric range embodying many new features is being introduced by the specialty appliance sales department of General Electric Co.

Known as the Imperial, the new range was designed by Ray Patten, well-known industrial designer.

Among the unusual features of the G-E Imperial are a new aviation-type centralized panel control—all switches and controls mounted together on the back panel—which contains radio dial-type illuminated automatic-temperature controls, new design built-in automatic Telechron electric timer and clock, automatic electric lighting in upper oven, new G-E "minute minder" which gives audible note of elapsed time by ringing a bell at a predetermined time, and bakelite switch buttons.

Cooking Equipment

There are two large capacity, high efficiency ovens (4,256 cu. in. each). Standard equipment consists of G-E hi-speed Calrod surface units, two of 1,200 watts, one of the 2,100 watts; G-E thrift cooker with special pudding pan; concealed safety plugs on all surface units; Calrod oven units throughout; aluminum smokeless broiler pans in each oven; sliding shelves—to eliminate stooping—which are equipped with lock-stop and safety rack at rear, automatic induced draft on each oven with gravity ventilation for all other interior portions of range, extra large siv cadmium-plated warming compartment with separate Calrod heating unit, switch and thermostatic control, large cadmium-plated utility storage drawer, concealed porcelain-enameled drip tray, counter-balanced shelf-type oven doors.

Compact in Size

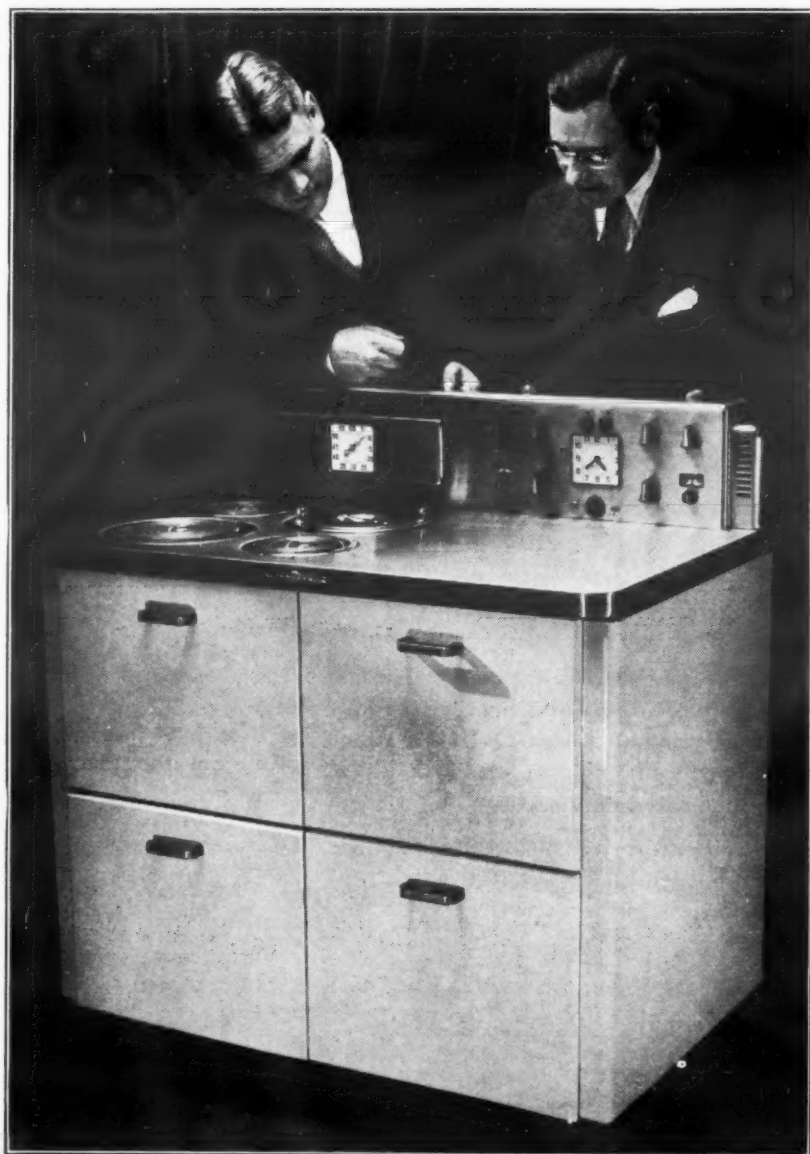
The new G-E Imperial is unusually compact. It occupies a floor space of 42 inches by 27 inches, with an all-over height of 42 inches. The cooking top is 36 inches from the floor. Weight is 420 pounds.

The range is designed to be completely built-in, flush against walls and cabinets. No vents nor flues are necessary. It has a modern, smooth front without switches or other markings.

The finish of the Imperial is white vitreous enamel. Its Monel metal top follows the popular vogue for such surfaces in kitchens. Surface units and preparation surface are at the same level.

Floor-type construction provides convenient toe space below. It has rust-proof base and sanitary floor covering border.

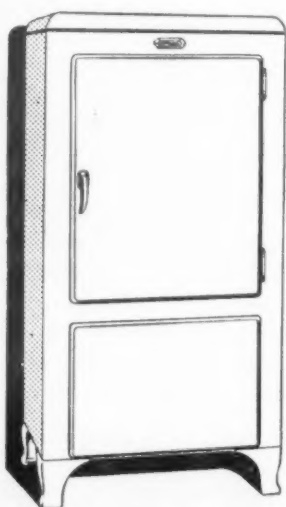
A Super-Deluxe Range Model



P. B. Zimmerman (right), manager, specialty appliance sales department, and J. R. Poteat, manager, range division, appraise the aviation-type control panel on the G-E 'Imperial' electric range.

S e r v i c e

One of the features which have contributed in no small measure to the success of Copeland is the matter of service.



Copeland makes Seven Household Models, 21 Commercial Models—a full line.

Copeland's Service Policy is based on the fundamental that the ultimate customer must be satisfied. Parts, Promptness and Price form the trinity of satisfaction with service on any manufactured product and Copeland satisfies in every particular.

Service parts are available for any Copeland unit at prices which are very reasonable. Promptness in shipping is so well understood that all parts orders invariably leave our plant on the date the order is received.

This service on both Household and Commercial models is a paramount reason why the trade, as well as the originating customer is thoroughly satisfied with Copeland performance.

Distributors everywhere appreciate the care we take of their miscellaneous orders for service parts and it is one of the reasons why more and more discriminating merchandisers are turning to Copeland as a year-round producer of revenue for them.

We invite correspondence with responsible distributors who appreciate the value of a worth-while selling proposition.

COPELAND REFRIGERATION CORP., Mount Clemens, Mich.
Division of Winslow-Baker-Meyering Corp.

Copeland
DEPENDABLE ELECTRIC REFRIGERATION

EH&FA's Showroom In Chattanooga To Be Opened Sept. 20

CHATTANOOGA, Tenn.—Formal opening on Sept. 20 of the Electric Home and Farm Authority's showroom and electric demonstration in the James building here will be the occasion for a three-day program sponsored jointly by the civic and business organizations of the city.

Retail and wholesale organizations, business and professional groups and civic clubs will take an active part in the event. Special displays, emphasizing the home use of electricity, will be shown in downtown store windows.

The program will open Thursday night, Sept. 19, with a banquet and a preview of the EH&FA showroom. David E. Lilienthal, Tennessee Valley Authority director in charge of power and president of EH&FA, will be the guest of honor at the banquet. George D. Munger, commercial manager of EH&FA has invited leaders from all branches of the electric appliance industry to attend the banquet and visit the showroom.

The Authority will cooperate with the Retail Merchants Association in preparing window displays built around the various uses of electricity and also educational exhibits depicting various aspects of the entire TVA program.

New showroom will be air conditioned and will include in its exhibits nearly every type of electric appliance used in the home, in addition to the special TVA models for which EH&FA finances customer purchases on long-term payments.

Anchor Lite Appliance Stages 'Premiere' Show

PITTSBURGH—A Hollywood premiere served as a pattern for the show which Anchor Lite Appliance Co., Crosley distributor, put on for 2,000 Pennsylvania dealers and salesmen and their families at a meeting held recently for the purpose of introducing the new Crosley radio line.

The Davis theater was hired for the evening and the entire Crosley line was put on display in the lobby.

An announcer with a microphone announced the officials of various dealerships as they passed through the lobby. Every woman was presented with a corsage and every man received a rose boutonniere as well as a cigar lighter bearing the Crosley insignia.

A welcome address was given by Harold W. Goldstein, president and general manager of the Anchor Lite Appliance Co., which was followed by addresses by H. E. Richardson, assistant to the president of Crosley Radio Corp., C. R. Betters, Anchor Lite sales manager, and C. J. Kauffman, store manager of the Anchor Lite Appliance Co.

Following the showing of a first-run musical motion picture, refreshments were served, and special bulletins and pictorials passed out to the dealers.

Local Food Store Tie-In Used by G-E Distributor

PITTSBURGH—Twenty-five G-E refrigerators were given away by 387 P. H. Butler Co. food stores in the Pittsburgh area, who cooperated with Ochiltree Electric Co., G-E distributor, in a six week's campaign. Newspaper advertising, window displays, posters, and a large float, which traversed the city and outlying districts, were the media used to advertise the promotion.

Prizes, four each week, were awarded for the best answers to the question "Why Can General Electric Co. Give a 5-Year Protection Plan on the Monitor Top Mechanism of the General Electric Refrigerator?"

Entry blanks for the contest were given with each 25-cent purchase and were deposited in the distributor's and dealer's stores. According to Ochiltree, more than 2,000 persons brought entry blanks into the distributor's store during the first week.

Outside judges selected the winners, who were announced in the newspapers and whose photographs were used on window posters.

Dealers from Alabama Visit Crosley Factory

CINCINNATI—Crosley dealers who were successful in a recent sales contest sponsored by the Perfection Mattress & Spring Co. of Birmingham, Ala., were awarded with a trip to the home offices and factories of Crosley Radio Corp. here.

While in Cincinnati the group studied the production of Crosley refrigerators and radios, visited the new 500,000-watt transmitter for radio station WLW, and saw the Cincinnati baseball team (of which Powell Crosley, Jr., is president) play.

The trip was made under the direction of J. W. Clary, manager, radio and refrigeration department, Perfection Mattress and Spring Co.



"Boy, did I ever tell 'em! And that makes me top man this month.

How do I do it? Easy. I tell 'em about the Dry-Zero Insulation. That it will save them up to 60% in running costs . . . that means from 30 cents to a dollar and a half a month saved. They just have to buy! And does that make me mad."

Dry-Zero offers one of the best selling points any salesman of a Dry-Zero insulated job can use. It is the chief reason why a low temperature can be maintained in the box with a minimum consumption of current. Dry-Zero assures economical operation for the life of the refrigerator. If you want the complete story of Dry-Zero insulation, write for "What is Dry-Zero."

DRY-ZERO

REG. U.S. PAT. OFF.

THE MOST EFFICIENT
COMMERCIAL INSULANT KNOWN

Dry-Zero Corporation •

CHICAGO
Merchandise Mart

TORONTO
687 Broadview Ave.

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VOL. 13, No. 2, SERIAL NO. 286, SEPT. 12, 1934

Over a Million Units Sold in 7 Months

WHEN an industry surpasses its best previous year's sales total in seven months, that's news. And that's exactly what the electric refrigeration industry has done. During the first seven months of 1934, manufacturers of household electric refrigerators sold 1,134,800 units to distributors and dealers, according to the estimate just made by ELECTRIC REFRIGERATION NEWS, based on actual figures furnished by 25 manufacturers plus estimates furnished by suppliers of 10 other manufacturers. This compares with the NEWS estimate of 1,080,000 for all of 1933—the first year the industry sold more than a million refrigerators. That's an increase of 54,800 units, with five months yet to go!

It should be noted that these figures include exports. If we consider sales made only to outlets in the United States, though, the total would still be over a million—1,068,500. Refrigerators shipped abroad during the first seven months of 1934, according to the NEWS estimate, totaled 66,300.

How does ELECTRIC REFRIGERATION NEWS arrive at its figures on industry sales? By taking the official statistics released by the National Electrical Manufacturers Association (Nema) on sales of its member manufacturers, and adding to this sum individual figures for manufacturers not members of the Nema.

Nema Members Account for 88.4 Percent of Total Household Sales

During the first seven months of 1934, 14 members of the Refrigeration Division of the National Electrical Manufacturers Association (Nema) have regularly reported their sales. They are as follows: Crosley Radio Corp., Frigidaire Corp., General Electric Co., Gibson Electric Refrigerator Corp., Kelvinator Corp., Leonard Refrigerator Co., Norge Corp., Servel Sales, Inc., Stewart-Warner Corp., Sunbeam Electrical Mfg. Co. (includes sales of Major Appliance Corp. and Sears, Roebuck & Co.), Uniflow Mfg. Co., Universal Cooler Corp., (includes sales of Potter Refrigerator Corp., Truscon Steel Co. and Montgomery Ward & Co.), and Westinghouse Electric & Mfg. Co. The Rudolph Wurlitzer Mfg. Co. furnished figures for the first six months (Wurlitzer is no longer in production) and Trupar Mfg. Co. reported during the first five months.

These 16 manufacturers, whose sales figures are submitted in a lump sum by the Refrigeration Division of the National Electrical Manufacturers Association, accounted for 88.4 per cent of the total, or 1,003,150 refrigerators.

Principal Non-Nema Companies Report Their Sales Direct to the News

Companies which are members of Nema, but have not reported sales this year are as follows: Apex Electrical Mfg. Co., Jomoco, Inc., Merchant & Evans Co., Potter Refrigerator Corp. (included in Universal Cooler figures), and Sparks-Withington Co.

Other companies which are considered as

factors in the refrigeration industry this year are as follows: Copeland Refrigeration Corp., Domestic Industries, Inc., Electro Kold, E. S. Mathews, Inc., Fairbanks-Morse Home Appliances, Inc., General Household Utilities Co. (Crunow), Gilfillan Bros., Inc., Heinz & Munschauer (including Dayton Refrigeration Corp.), Ilg Electric Ventilating Co. (which has recently ceased production of electric refrigerators), Jewett Refrigerator Co., Keokuk Refrigerating Co., Landers, Frary & Clark (Universal), Liberty Refrigeration Corp., Merchant & Evans Co., O'Keefe & Merritt Co., Parker Mfg. Co., Sanitary Refrigerator Co., Starr Co. (Starr-Freezer), Williams Oil-O-Matic Heating Corp. (Ice-O-Matic), Zerozone Refrigeration Corp., and Narragansett Machine Co.

Other manufacturers are also reported to be manufacturing household electric refrigerators, being as follows: Deissler Machine Co., Eddy Refrigerator Co., Gobro Sheet Metal Mfg. Co., Icemaster Co., Maine Mfg. Co., Mitycold Corp., Warner Steel Products Co.

Questionnaires were sent to the above two groups of manufacturers by ELECTRIC REFRIGERATION NEWS, asking for their sales statistics. Nearly all of the more substantial of these concerns came through with figures; for those few refrigeration manufacturers which did not respond, figures were obtained from manufacturers of parts and supplies which they buy.

Combining these figures, the NEWS arrived at an estimate of 1,134,800 refrigerators—or 11.6 per cent of the seven months' total—for manufacturers whose figures are not included in the Nema statistics. This is the smallest percentage of the industry's total ever accounted for by the non-Nema group.

Explanation of the High Estimates Released by Bureau of Edison Institute

Readers of ELECTRIC REFRIGERATION NEWS may notice a discrepancy between the estimates published in this issue of the NEWS and those which have been made public by the Electric Refrigeration Bureau of the Edison Electric Institute. This latter organization claims that 1,124,420 household electric refrigerators were sold in the United States during the first seven months of 1934. This figure is considerably higher than that of the NEWS, which is 1,068,500 refrigerators sold in the United States.

Wondering if the Bureau had access to information on sales which had not been divulged to the NEWS, the Bureau was queried as to the source of their figures. Replied Manager George N. Brown of the Bureau:

"First, it should be understood that what we wanted were sales figures by states for distribution to the Electric Refrigeration Bureau's regional and state directors in order to build up rivalry and a spirit of competition among divisions and states. The natural thing was to turn to Nema for these figures and then increase them to represent the industry . . .

"There are 20 member companies in the Refrigeration Division of Nema with 16 reporting sales during January, 15 for the next four months, and 14 for June. Due to the greater number reporting we were told at the beginning of the year that 84 per cent to 85 per cent would be more nearly correct in place of the 80 per cent which we used last year, so the change was made, using 84 per cent as Nema's share."

Thus it will be seen that the Electric Refrigeration Bureau arrives at its estimates for 1934 industry sales by taking the Nema figures and adding 16 per cent for sales of manufacturers not represented in the Nema totals. By questionnaires directly to these "outside" manufacturers, and by inquiries made among suppliers, the NEWS developed the fact that the percentage of the total accounted for by the Nema statistics during the first seven months of 1934 was 88.4 per cent, rather than the estimate of 84 per cent employed by the Bureau.

Although it would appear that early guesses made by some sales managers that the industry would sell 1,500,000—or even 1,750,000—refrigerators in 1934 were a trifle high, it does seem an eventuality that the figure will be so far in excess of anything the industry has done previously that it may be a mark to shoot at for a long time to come.

LETTERS

Why G-E Omitted Commercial Capacities

General Electric Co.
Nela Park, Cleveland, Ohio

Editor:
I am enclosing forms tabulating data on our commercial condensing units.

You will note that we have not filled in the condensing unit capacities and I want to explain our reason for this so that you will understand that we are not merely being arbitrary in the matter.

The notation at the bottom of your form giving conditions under which the capacities are to be reported is a definite improvement over the standard ton for small commercial machines. However, there is still one factor which must be cleared up before published capacities mean very much for comparative purposes. I am referring to the super-heating of the suction gas.

Frigidaire, Kelvinator, Westinghouse, and ourselves have been trying to arrive at a suitable basis for rating commercial condensing units and have agreed on conditions essentially as outlined on the bottom of your form, but with the addition that the suction gas be superheated to 90°. This provides the simplest means for controlling tests and for making comparisons, but it means showing capacities approximately 10 to 15 per cent greater than are actually realized in most installations.

Some manufacturers have already published capacity tables on this new basis but we have not. Therefore, I have the problem of deciding whether to give you capacity figures including this super-heat thereby making our data comparable to competition, but at the same time would be 10 to 15 per cent higher than the capacity figures now being used by our distributors for actual application work; or of giving you the capacity figures as now being used by distributors which would make us compare unfavorably with competition. I feel that the least confusion will result if we omit the capacities entirely until we get this matter completely straightened out.

W. M. TIMMERMAN,
Manager, commercial engineering div.

NRA and Salesmen

49 W. Chelton Ave.
Philadelphia, Pa.

Editor:
The Research and Planning Division of the NRA has been engaged in making an analysis of the facts obtained at the hearing held in Washington, D. C., May 24 and 25 on the subject "Outside Selling."

Have you heard what these findings are and published a brief resume in your columns?

M. SEGAL.
Answer: Apparently no findings have been made public as yet, as we have a promise from E. O. Mather, assistant deputy administrator of the Wholesale Distributing Trades section, that he will let us know immediately of any action that is taken relative to the status of outside salesmen.

Since the first of the year it has been apparent that the machinery of the NRA has slowed up considerably, and the findings of the various NRA divisions are often made public many months after hearings have been held.

Counter Freezer Market

Commercial Refrigerator Mfg. Co., Ltd.
1020 East 59th St., Los Angeles

Editor:

Merchants in all lines of business have been fighting for their very existence during the past few years. Sales have been at a low ebb. Overhead proportionately high.

The retailer has open two methods of creating a profit. Indirectly by saving money in overhead, stopping losses and leaks in his business. Unquestionably one of the surest ways to create an indirect profit is through the installation of correct refrigeration to preserve perishable foods.

Refrigeration can also play a very important part in increasing the direct profits of the retailer. Along this line the most outstanding installations have been of the small counter ice cream freezer.

Had the cycle of refrigeration development reversed itself we seriously doubt that commercial ice cream would have ever been manufactured. The small efficient refrigeration units available today have made possible the manufacturing of ice cream in a dealer's own store quickly, easily, and at an unusual low figure.

Our company has shipped these small freezers to almost every state in the Union and to foreign countries. Letters from users show figures of increased profits and business.

During the next few years sales in counter freezers equipped with highly efficient refrigeration units will undoubtedly compare favorably with the hopes of air-conditioning units.

A. E. STRAND.

The Poor Rich

Electric Refrigeration News
5229 Cass Ave., Detroit, Mich.
To New York Distributors:

We have been hearing interesting reports about the electrical appliance situation in Westchester County, New York. We understand that although it is said to be the wealthiest county in the world—with an assessed tax valuation of two billion dollars—that it has a remarkably low appliance saturation, because citizens believe they pay the highest rates in the world for domestic electric power, and use it as little as possible.

We shall appreciate all the details you can give about this situation, including power rates, saturation of various appliances, and what the distributors and dealers are doing about it.

Editor.

Rex Cole, Inc.
New York, N. Y.

Editor:

As far as refrigerators, washers, and some of the smaller electrical appliances are concerned, I think you will find that Westchester saturation is about equal to that of any other Metropolitan suburb. It is true, however, that electric rates in Westchester County are relatively high. I believe at present 9 cents per kilowatt hour is the standard figure, with no power rate available. Naturally, under these conditions, the electric range would not be very popular. However, even in the City of New York itself, with an electric rate of 5 cents, electric ranges have made little progress.

I am unable to give you exact figures on saturation in Westchester County on the different appliances. R. L. Polk & Co. or the Westchester Lighting Co. might be able to do so.

E. H. CAMPBELL,
Manager, sales promotion dept.

Norge Corporation of New York
331 Madison Ave.
New York, N. Y.

Editor:
Responding to your letter in regard to electrical appliance business in Westchester County, New York, it is true that the Westchester rates are considerably higher than those of surrounding territories, but the prime reason for appliance sales being so low in Westchester County is due to the utilities not cooperating with the appliance manufacturers to the extent that utilities have in New York City, Newark, and Philadelphia.

Another reason is, as you state, the very large valuation of Westchester property has had something to do with it because residents of Westchester County made their commitments in real and personal property during the boom days and when the depression did come they were hit the hardest of any of the Metropolitan sections.

There is no appliance that is nearing the saturation point with the exception of toasters, ironers, and washing machines.

The comparative rates of Westchester County are not available in time to incorporate them in this letter but will be forwarded to you at a later date.

M. G. O'HARRA,
President.

Norge Corp. of New York
331 Madison Ave., New York City

Editor:
Supplementing Mr. O'Harra's letter of the 18, following are the residential electric rates for the several utilities in the metropolitan area.

N. Y. & Brooklyn Edison Companies
First 10 kw. hrs. \$1.00
Next 5 kw. hrs. @ 6¢ 30
Excess kw. hrs. @ 5¢

Minimum bill \$1.00
Westchester Lighting Co.

First 8 kw. hrs. \$1.00

Next 22 kw. hrs. @ 8¢

Next 170 kw. hrs. @ 6½¢

Excess kw. hrs. @ 5¢

Minimum bill \$1.00

N. Y. & Queens El. Lt. & Power Co.

First 10 kw. hrs. \$1.00

Next 40 kw. hrs. @ 6¢ 2.40

Excess kw. hrs. @ 5¢

Minimum bill \$1.00

The Yonkers Elec. Light & Power Co.

First 20 kw. hrs. @ 8¢

Next 10 kw. hrs. @ 7¢

Next 170 kw. hrs. @ 6½¢

Excess kw. hrs. @ 5¢

Minimum bill \$1.00

H. M. AIKEN,
Secretary to M. G. O'HARRA.

News Helps Him Daily

Coward & Co.
1705 Hampton St.
Columbia, S. C.

Subscription Dept.:
Please enter my subscription for ELECTRIC REFRIGERATION NEWS, and forward me the bill, as I daily need your information. Thanks.

A. C. COWARD.

An Offer of Cooperation

California Refrigerator Co.
1077 Mission St., San Francisco

Editor:
We shall always be glad to cooperate with you and your interesting and well edited paper.

CLARENCE F. (SANDY) PRATT,
President.

Maxon Tests Ideas in Muskegon Store



CLEVELAND—For the purpose of testing new merchandising and sales ideas, Maxon, Inc., advertising agency for General Electric kitchen appliances, has established an experimental retail store in Muskegon, Mich.

Financed and operated by the agency, the store represents an effort on the part of the advertising organization to get closer to the problems encountered by the dealer by actually becoming a dealer. Used as an experimental station for General Electric appliance sales and merchandising, new ideas are being tried out in the store.

Construction and decoration of the store is unique in many respects. It is modern throughout. Exterior is of burnished copper, with modernistic red and white lettering and trim. Entire front of the store is one solid plate glass, the window space running from the floor to the ceiling. With the copper exterior this gives the effect of framing whatever is displayed in the window. From the street the pedestrian can get a view of the entire store, in the rear of which is an all-electric kitchen.

Treatment of the interior also is decidedly different. Walls are covered with pressed corkboard in natural dull colors. The floor is of red tile linoleum. Display counters and fixtures carry out the red and cork coverings. The furniture is of copper tubing and red leather.

Width of the store in the rear is covered by a complete electric kitchen set upon a stage. This kitchen is

brilliantly lighted and is a complete operating unit, offering opportunity for cooking schools and actual demonstration of the various appliances.

As far as is known, it is the first electric appliance store in the country to have corkboard walls and ceilings. The cork absorbs sounds, such as clattering footsteps and echoes and makes for quiet sales conversations. Moreover, the corkboard serves as insulation for air conditioning.

In designing the store Lloyd Weed of the Detroit office of Maxon, Inc., struck upon the idea of using dull color for the walls in order to make the gleaming white of the refrigerators and ranges stand out all the more. Mr. Weed also utilized indirect lighting.

Cooking schools are held several times each month in the evenings. G. W. Fischer, manager of the store, believes that night schools offer the best opportunity of getting both the wife and the husband into the store. These schools are not advertised generally but are held by invitation, prospects and a few users being invited.

Under Mr. Fischer's direction, five outside salesmen and a woman home laundry demonstrator are employed. The regular General Electric closed territory field plan is used, while other General Electric practices have been adopted. However, in addition to this the store will try out new promotional ideas, special advertising features, special window displays, and other new sales and merchandising programs.

Texas Utility Uses Traveling Kitchen

SAN ANTONIO, Tex.—For the purpose of promoting the use of electricity among customers, stated Mr. Gussett, head of the San Antonio Public Service Co., a model electric kitchen on wheels left the main office recently for a tour of south Texas.

The coach is equipped with a range, refrigerator, dishwasher, water heater, and electric lighting. The connected load is approximately 10 kwh. Wires, extension cords, and hose are included in the equipment so that connections with the electric lines and water mains can be made in most locations.

The traveling kitchen demonstrated to company employees the comfort and convenience of an electrified kitchen.

On its second tour, demonstrations were made before small groups of housewives, with Mrs. Clare West, home service expert, in charge of the traveling culinary department.

Charlie Grieder, south Texas department sales expert, was in charge of the movements of the electric appliance coach through the southwestern territory. G. Wallace Smith, manager of the gas and electric department, planned and designed the coach.

G-E Issues New Booklet On Home Service

CLEVELAND—"Modern Modes in Home Canning" is the title of a new booklet just issued by the home service division of the General Electric specialty appliance sales department here.

It contains information on canning, preserving, and pickling in connection with use of the General Electric range.

Bus into Showroom



An Iowa utility, distributing Westinghouse appliances, converted a passenger bus into the roomy traveling showroom pictured above.

Poster Contest Is Held By Electrolux Dealer

ALHAMBRA, Calif.—As a sales promotion activity, the Bond Hardware Co., Electrolux dealer here, recently sponsored a poster contest among students of the tenth and eleventh grades and the seniors and post-graduate students of the Alhambra high school.

Seventy-two students participated in the competition, and submitted more than 200 posters, all of which were displayed in the Alhambra office of the Los Angeles Gas & Electric Co., at the high school art exhibit, and in windows of the dealership.

Georgia Power Co. Expands Home Service Activities

ATLANTA—Largest home service department in the country is now operated by Georgia Power Co., claims Preston S. Arkwright, president. Georgia Power has divided its customers into blocks of 2,500 to 3,000, with one home economist assigned to each block. Miss Fern Snider is head of the home service department.

It is planned for a home economist to call on each customer and suggest ways of obtaining greater convenience from electric service, give information about correct lighting, and make minor repairs.

Grunow Dealer Takes Space in Newspaper To Answer Alleged 'Mud-Slingers'

SACRAMENTO, Calif.—F. H. McGinnis, Grunow dealer here, recently bought space in the *Sacramento Bee* to answer rumors allegedly spread by competitors that Wm. C. Grunow, president of General Household Utilities Corp., was still connected with the bankrupt Grigsby-Grunow Co.

Under the heading "Mud-Slinging Not Confined to Politics" Mr. McGinnis stated in the advertisement:

"The fact that a certain corporation called the Grigsby-Grunow Corp. went into bankruptcy due solely to mismanagement has given competitive salesmen something to talk about in a grossly misrepresented manner. In all instances they infer to the unsuspecting prospect that the Grunow who builds the refrigerator is the one who is connected with the

bankrupt concern. As a matter of fact, he has no more connection with it than you or I have . . .

"Suppose one of the half dozen persons in Sacramento named McGinnis should go into bankruptcy. It wouldn't necessarily mean that it was the F. H. McGinnis who sells Grunow refrigerators.

"Neither is it reasonable or fair to say that Mr. Grunow is bankrupt because of the Grigsby-Grunow Co.'s difficulties.

"Inasmuch as there is legal recourse in such matters, it will be appreciated if anyone will report to the undersigned the name of salesman and firm he represents who uses the 'bankrupt' argument in connection with Wm. C. Grunow or the General Household Utilities Corp."

EH&FA Is Criticized for Franking Promotion

CHATTANOOGA, Tenn.—Use of the government frank in obtaining distribution for the rotogravure folder which the EH&FA has prepared has aroused members of the Southern Newspaper Publishers' Association. The publishers declare it is unfair competition.

It is said that 300,000 of the pamphlets are being distributed. The frank and the legend, "Official Business," are substituted for 4½ cents postage which would be required from a commercial concern at third-class rates, or 10 cents locally for first-class, and 15 cents elsewhere.

"How is newspaper advertising to compete in any kind of advertising program on the basis of cost if the postage bill for direct mail is eliminated from consideration," asked Capt. Cranston Williams, secretary of the association, in a recent bulletin to members.

Louisville Apartment Installs New Units

LOUISVILLE—Refrigerators in the 14 suites of the Tudor Terrace Apartments, 1801 Spring Drive, owned by Henry Koehler, were replaced by General Electric Monitor Tops, announces R. T. Foree, Jr., apartment house sales manager for the Thompson-Sterling Co. here. Koehler gave consideration to five makes of refrigerators, including G-E.

Porcelain Enamel Institute Explains Campaign in Letter to Dealers

CHICAGO—To herald the start of its educational campaign designed to acquaint those interested in the sales of electric refrigerators with facts about porcelain enamel as a refrigerator finish, the Porcelain Enamel Institute has sent a letter to manufacturers, distributors and dealers in this industry to which has been attached the full page advertisement published in the Aug. 1 issue of *ELECTRIC REFRIGERATION NEWS*. This advertisement fired the opening gun in the educational campaign.

The newly formed "Educational Bureau" of the Porcelain Enamel Institute proposes to make available to the refrigeration industry constructive information that will be of assistance to those interested in both the technical aspects of enameling and the sales promotion of enameled refrigerators. Such information is to be sent free of charge to those who fill out a blank which has been included with the letter.

G-E Dealer Markets 101 Units in Drive

WATERBURY, Conn.—Single-handed, G-E Dealer William B. Luby of Wallingford, Conn., sold 101 refrigerators and six ranges, representing 2.5 per cent of his meters during the recent G-E sales contest.

Dependability in a product is never the result of chance. It is a matter of design and building. To be familiar with Universal Cooler's manufacturing policies makes it easy to understand why Universal Cooler electric refrigeration units have won such high recognition among the trade and the public as products of dependable performance.



UNIVERSAL COOLER CORPORATION
DETROIT, MICHIGAN BRANTFORD, ONTARIO

MANUFACTURERS OF A COMPLETE LINE OF HOUSEHOLD AND COMMERCIAL REFRIGERATION EQUIPMENT

SPECIFICATIONS of commercial condensing units of 22 manufacturers are published in the following pages as a special feature of this issue of the NEWS.

It will be noted that a new set of conditions for figuring capacities has been adopted with this set of specifications, namely pounds of ice-melting effect (I.M.E.) per 24 hours with a suction gas pressure corresponding to a temperature of 15° F. (measured at the crankcase), and discharge pressures corresponding to a 90° F. room for air-cooled units and 80° water for water-cooled units, with a water temperature rise not exceeding 18° F. through water-cooled condensers.

These conditions represent a decided deviation from the well-known A.S.R.E. standard ton, but they are much closer to actual field practice in commercial refrigeration, and have already been adopted by a number of large refrigeration manufacturers.

It is hoped that committees now working on the problem of a standard for rating commercial condensing units will recommend a standard, including the degree of superheat, which can be officially adopted by the NEWS the next time commercial specifications are tabulated for publication.

Bedell, Frick, and Trupar are the only makes whose capacity figures were not based on the new schedule of conditions.

Zerozone Refrigeration Corp., 333 Cass Ave., Mt. Clemens, Mich.

Air Cooled										Water Cooled																	
Model Nos.	AB1416		AB2433		AB3450		AB4375		AB44100		AB53150		WB3333		WB4375		WB44100		WB53150		WB54200		SW	SW	SW	SW	
	AB2425	AB3333	AB3475	AB43100	AB44150	AB53200	WB3450	WB41500	WB44150	WB53200	WB54300	4375IC	44100IC	46150IC	54200IC												
Compressor Specifications																											
Refrigeration capacity	114	238	300	430	600	775	840	840	1082	1082	1647	1647	430	600	942	942	1225	1225	1860	1860	2560	2560	1075	1400	2160	2850	
Motor size (hp.)	$\frac{3}{4}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$	1	1	$1\frac{1}{2}$	$1\frac{1}{2}$	2	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1	$1\frac{1}{2}$	$1\frac{1}{2}$	2	2	3	$\frac{3}{4}$	1	$1\frac{1}{2}$	2	
Compressor speed (r.p.m.)	360	360	440	300	440	640	285	285	370	370	280	280	300	440	300	300	390	390	310	310	425	425	375	470	615	470	
Bore (in.)	$1\frac{1}{2}$	2	2	2	2	2	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{3}{4}$	$2\frac{3}{4}$	2	2	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{3}{4}$	$2\frac{3}{4}$	$2\frac{3}{4}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{3}{4}$	
Stroke (in.)	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$3\frac{1}{2}$	$3\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$3\frac{1}{2}$	$3\frac{1}{2}$	$3\frac{1}{2}$	$3\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$3\frac{1}{2}$	
No. of cylinders	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Charge of refrigerant (lbs.)	2	2	5	5	5	5	6	6	6	6	8	8	5	5	6	6	6	6	8	8	8	8	10	10	10	10	
Pump down capacity of receiver (lbs.)	2	2	5	5	5	5	14	14	14	14	$21\frac{1}{2}$	$21\frac{1}{2}$	5	5	14	14	14	14	$21\frac{1}{2}$	$21\frac{1}{2}$	$21\frac{1}{2}$	$21\frac{1}{2}$	$16\frac{1}{2}$	$16\frac{1}{2}$	$16\frac{1}{2}$	$16\frac{1}{2}$	
Quantity of oil in system (pts.)	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{7}{8}$	$1\frac{1}{4}$	$1\frac{1}{4}$	2	4	4	4	4	8	8	$1\frac{3}{4}$	$1\frac{3}{4}$	4	4	4	4	8	8	8	8	4	4	4	8	
Overall Dimensions (in.)																											
Width	21	21	$28\frac{1}{2}$	$28\frac{1}{2}$	$28\frac{1}{2}$	$28\frac{1}{2}$	37	37	37	37	43	43	$28\frac{1}{4}$	$28\frac{1}{4}$	37	37	37	37	43	43	43	43	30	30	30	30	
Depth	17	17	$17\frac{1}{2}$	$17\frac{1}{2}$	$17\frac{1}{2}$	18	22	22	22	22	$25\frac{1}{2}$	$25\frac{1}{2}$	$14\frac{1}{2}$	$14\frac{1}{2}$	22	22	22	22	$25\frac{1}{2}$	$25\frac{1}{2}$	$25\frac{1}{2}$	$25\frac{1}{2}$	$19\frac{1}{2}$	$19\frac{1}{2}$	$19\frac{1}{2}$	$20\frac{1}{2}$	
Height	16	16	19	19	19	19	$25\frac{1}{2}$	$25\frac{1}{2}$	22	22	$25\frac{1}{2}$	$27\frac{1}{2}$	$18\frac{1}{2}$	$18\frac{1}{2}$	$24\frac{1}{2}$	$24\frac{1}{2}$	$24\frac{1}{2}$	$24\frac{1}{2}$	$27\frac{1}{2}$	$27\frac{1}{2}$	$27\frac{1}{2}$	$27\frac{1}{2}$	$25\frac{1}{2}$	$25\frac{1}{2}$	$25\frac{1}{2}$	$27\frac{1}{2}$	

Type of system	Open
Type of compressor	Reciprocating
Compressor drive	Belt
Type of shaft seal	fellows
Cylinder head cooled by	A models and WB3333 & WB3450—air; others—water
Type of lubricating system	Splash
Oil level measured by	Oil plug
Type of compressor oil	Argon
Viscosity of compressor oil	300 at 100°

Method of cooling.....A models—air;
W models—water
Type of condenser.....A models—finned tube; W models—double tube except WB3333 & WB3450

Kind usedMethyl chloride

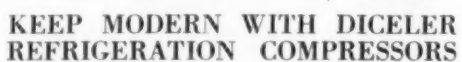
Make of control.....Penn
Type of control...Pressure & temperature
High pressure cutout.....On oil but
models AB1416, AB2425
Make of water regulating valve...Penn &
Riley

Type of suction valve.....Disc
Type of discharge valve.....Reed

Special Features

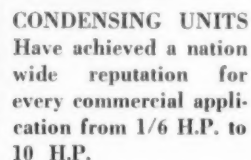
IC models especially designed for use with counter-type ice cream freezers.

JACKSONVILLE, Fla. — Foremost Dairies, Inc., with home offices here and subsidiaries in Alabama, North Carolina, Florida, South Carolina, and Georgia, recently bought six trucks, equipped with Kold-Hold systems.



If you are not already acquainted with DICELER compressors and condensing units, you owe it to yourself to write at once.

DEISSLER MACHINE COMPANY
Greenville, Pa.



**NEW HEAVY DUTY
FOUR CYLINDER
COMPRESSOR** Illustrated on the left is the latest DICELER development. In designing this compressor, as in all DICELER equipment, every operating contingency has been taken into consideration and adequate protection provided against it.

Frick Co., Waynesboro, Pa.

Model Nos.	F 251	F 332	FW 332	F 502	FW 502	F 752	FW 752	F 1002	FW 1002	F 1502	FW 1502	FW 2002	FW 2002	FW 3003	FAW 1002	FAW 1502	FAW 2002	FAW 3003	FAW 5003	FAW 7503	FAW 10003
Compressor Specifications																					
Refrigeration capacity*	.850	1.885	2310	3200	3850	3850	4580	6050	6900	7200	8210	12360	14530	20250	10575	12900	14730	28500	60250	106100	123100
Motor size ² (hp.)	1/4	1 1/2	1 1/2	1 1/2	3/4	3/4	3/4	1	1	1 1/2	1 1/2	2	2	3	1	1 1/2	2	3	5	7 1/2	10
Compressor speed (r.p.m.)	CH ₂ Cl models	320	320	320	360	360	430	275	320	320	400	480	400	480	275	320	400	400	480	345	400
F-12 models		320	320	320	360	360	430	275	320	320	400	480	400	480	275	320	400	400	480	270	345
Bore (in.)	1.8125	1.8125	1.8125	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.5	2.5	2.25	2.25	2.25	2.5	3.25	4	4
Stroke (in.)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	3	3	3	3	3	3	3	3	3	3	3	4.25	4.25	
No. of cylinders	1	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2	2	3	3	3	3
Condensing unit charge of refrigerant (lbs.)																					
CH ₂ Cl models		3 1/2	3 1/2	4	4 1/2	4 1/2	5	8	8	8	8	8	12	12	8	8	8	12	14	17 1/2	17 1/2
F-12 models		3 1/2	3 1/2	4	4 1/2	4 1/2	5	10	10	10	10	12	14	14	10	10	10	14	16	20	20
Overall Dimensions (in.)																					
Width	24	32	32	32	32	32	32	38 1/2	38 1/2	38 1/2	38 1/2	38 1/4	52 1/2	52 1/2	38 1/2	38 1/2	38 1/2	52 1/2	52 1/2	61 1/2	61 1/2
Depth	16 3/4	19 1/4	19	19 1/2	19 1/2	19 1/2	19 1/2	25	25	25	25	16 1/2	25	25	25	25	25	25	32 3/4	32 3/4	
Height	20 3/4	23 1/4	23 1/4	23	23	23	23	30 1/4	30 1/4	30 1/4	30 1/4	30	31 1/4	31 1/4	30 1/4	30 1/4	30 1/4	31 1/4	32	36 1/4	36 1/4

Specifications of commercial condensing units manufactured by Vilter Mfg. Co. of Milwaukee and Williams Oil-O-Matic Co. of Bloomington, Ill., which were included in the March 14 tabulation, are not included in this issue because, according to word received from the manufacturers, these lines of commercial refrigeration equipment are being changed at the present time.

Trupar Mfg. Co., 140 Davis Ave., Dayton Ohio

Model No.	S2025A	A2033A	3033A	3050A	4050A	4075A	4100A	5100A
Compressor Specifications								
Lbs. I.M.E. per 14 hours based on zero suction pressure	173	213	233	299	352	505	505	...
Motor size (hp.)	4	$\frac{3}{8}$	$\frac{1}{2}$	1	$\frac{3}{8}$	$\frac{3}{4}$	1	1
Compressor speed (r.p.m.)	400	500	500	500	365	500	500	350
Bore (in.)	1 $\frac{1}{8}$	1 $\frac{1}{8}$	1 $\frac{1}{8}$	1 $\frac{1}{8}$	2 $\frac{1}{8}$	2 $\frac{1}{8}$	2 $\frac{1}{8}$	2 $\frac{1}{2}$
Stroke (in.)	1 $\frac{1}{8}$	1 $\frac{1}{8}$	2	2	2 $\frac{1}{8}$	2 $\frac{1}{8}$	2 $\frac{1}{8}$	3
No. of cylinders	2	2	2	2	2	2	2	2
Quantity of refrigerant in system (lbs.)	2 $\frac{1}{2}$	2 $\frac{1}{2}$	6	6	6	6	6	7
Pump down capacity of receiver (lbs.)	6	6	16	16	16	16	16	20
Quantity of lubricant in system (pts.)	1	1	1 $\frac{1}{4}$	1 $\frac{1}{4}$	1 $\frac{1}{4}$	1 $\frac{1}{4}$	1 $\frac{1}{4}$	2
Overall Dimensions (in.)								
Width	19 $\frac{1}{4}$	22 $\frac{3}{4}$	29 $\frac{1}{4}$	29 $\frac{1}{4}$	29 $\frac{1}{4}$	29 $\frac{1}{4}$	29 $\frac{1}{4}$	37 $\frac{1}{4}$
Depth	16 $\frac{3}{4}$	17 $\frac{1}{4}$	18 $\frac{1}{2}$	18 $\frac{1}{2}$	18 $\frac{1}{2}$	18 $\frac{1}{2}$	18 $\frac{1}{2}$	20
Height	13	13	20	20	20	20	20	26

Model No.	A 5150	W 3033	W 3050	W 4075	W 4100	W 5100	W 5150	MC 5200
Compressor Specifications								
Lbs. I.M.E. per 14 hours based on zero suction pressure	665	252	268	585	...	635	784	1176
Motor size (hp.)	1 $\frac{1}{2}$	$\frac{1}{8}$	$\frac{1}{2}$	1	1	1	1 $\frac{1}{2}$	2
Compressor speed (r.p.m.)	350	500	500	500	500	385	385	485
Bore (in.)	2 $\frac{1}{2}$	1 $\frac{1}{8}$	1 $\frac{1}{8}$	2 $\frac{1}{8}$	2 $\frac{1}{8}$	2 $\frac{1}{8}$	2 $\frac{1}{8}$	2 $\frac{1}{2}$
Stroke (in.)	3	2	2	2 $\frac{1}{8}$	2 $\frac{1}{8}$	3	3	3
No. of cylinders	2	2	2	2	2	2	2	2
Quantity of refrigerant in system (lbs.)	7	6	6	6	7	7	7	7
Pump down capacity of receiver (lbs.)	20	16	16	16	16	20	20	20
Quantity of lubricant in system (pts.)	2	1 $\frac{1}{4}$	1 $\frac{1}{4}$	1 $\frac{1}{4}$	1 $\frac{1}{4}$	2	2	2
Overall Dimensions (in.)								
Width	37 $\frac{1}{4}$	29 $\frac{1}{4}$	29 $\frac{1}{4}$	29 $\frac{1}{4}$	29 $\frac{1}{4}$	37 $\frac{1}{4}$	37 $\frac{1}{4}$	37 $\frac{1}{4}$
Depth	20	18 $\frac{1}{2}$	18 $\frac{1}{2}$	18 $\frac{1}{2}$	18 $\frac{1}{2}$	20	20	20
Height	26	20	20	20	20	26	26	26

Deissler Machine Co., Greenville, Pa.

Model No.									
400	800	1600	2600	2600	2800	2800	3800	3800	
MA	MA	MA	MW	MA	MW	MA	MW		
Compressor Specifications									
Refrigeration capacity	196.6	258.4	273.6	369.2	445.3	640.2	731.9	937.8	1192.7
Motor size (hp.)	$\frac{1}{8}$	$\frac{3}{4}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$
Compressor speed (r.p.m.).....	383	475	320	475	490	525	550	375	410
Bore (in.)	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
Stroke (in.)	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
No. of cylinders	1	1	2	2	2	2	2	4	4
Quantity refrigerant in system (lbs.)	2	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$	3 $\frac{1}{2}$	4	4	5	5
Pump down capacity of receiver in lbs. of refrigerant	4	4	6	8	8	9	9	12	12
Quantity lubricant in system (lbs.)	$\frac{3}{4}$	$\frac{3}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	3	3	5 $\frac{1}{2}$	5 $\frac{1}{2}$
Overall Dimensions (in.)									
Width	17 $\frac{1}{2}$	17 $\frac{1}{2}$	21	21	22 $\frac{1}{2}$	25	27 $\frac{1}{2}$	28 $\frac{1}{2}$	31
Depth	14 $\frac{1}{2}$	14 $\frac{1}{2}$	18	19	20	18	20	20 $\frac{1}{2}$	24
Height	12	12	18 $\frac{1}{2}$	20	20	18	17	22	19

Model No.	3900	3900	4000	4000	4500	4500	5000	6000	6400	6800
	MA	MW	MA	MW	MA	MW	MW	MW	MW	MW

Compressor Specifications										
Refrigeration capacity	1296.2	1674.3	1928.5	2667.3	3527.9	3148.7	4238.3	5032.6	9654.3	12033.6
Motor size (hp.)	1	1	1½	1½	2	2	3	5	7½	10
Compressor speed (r.p.m.)	475	510	375	410	475	510	475	365	590	695
Bore (in.)	1½	1½	2	2	2	2	3	3-1/16		
Stroke (in.)	1½	1½	2½	2½	2½	2½	3	3¼	3¼	3¼
No. of cylinders	4	4	4	4	4	4	2	4	4	4
Quantity refrigerant in system (lbs.)	5½	5½	5½	5½	6	6	8	12	12	12
Pump down capacity of receiver in lbs. of refrigerant	12	12	12	12	26	26	26	70	90	90
Quantity lubricant in system (lbs.)	5¼	5¼	7	7	8	8	6	12	12	16
Overall Dimensions (in.)										
Width	30	31	30½	31½	35½	37½	37½	59	59	59
Depth	21½	25	22	25½	25½	27½	27½	33	33	33
Height	25	21	25	22	26	22½	24	38¾	33¾	33¾

Type of system	Open
Type of compressor	Reciprocating
Compressor drive	Bel
Type of shaft seal	Flows
Cylinder head cooled by	A models—air; W models—water
Type of lubrication system	Splash & centri-force
Oil level measured by	6000 series— sight gauge; all others—oil level plug
Type of compressor oil	Mineral
Viscosity of compressor oil	150

Method of cooling.....A models—air;
W models—water;
Type of condenser....Air-cooled models—
finned tube; water-cooled models—
double tube
Type of liquid receiver.....Horizontal
Models with refrigerant filter.....1500MA
Models with fusible safety plug.....1500MA
and larger
Refrigerant
Kind used.....Methyl chloride

Type of system.....	Conventional
Type of compressor.....	Reciprocating
Compressor drive	Belt
Type of shaft seal.....	Diaphragm
Cylinder head cooled by ..	Water on water-cooled models—air on air-cooled models
Type of lubrication system.....	Splash

Method of cooling.....Air or water
Type of condenser.....Finned tube on
air-cooled models; tube-within-tube on
water-cooled models
Type of liquid receiver.....Horizontal
Has receiver fusible safety plug.....Yes

Type of discharge valve.....	Disc
Type of suction valve.....	Disc
Type of water valve.....	Solenoid

Make of motor.....Master or Delco

Kind used.....Sulphur dioxide or
methyl chloride

Make of control.....Detroit
Type of control...Pressure or temperature
High pressure cut-out.....All models
Point of operation of cut-out.....Methyl
chloride models-155 lbs.; SO₂
models-133 lbs.

controlledElectrically
Type of overload cut-out.....Fuse

Cylinder block	Cast iron
Pistons	Cast iron
Condenser tubes	Copper

COMMERCIAL REFRIGERATION

Gas Storage of Food Proves Successful

WASHINGTON — Important commercial results are being obtained in gas storage of food as an outcome of experiments made by the Food Investigation Board of the British Empire, according to word received here by the Bureau of Foreign and Domestic Commerce from Alfred Nutting of the American Consulate-General's office in London.

Some of the achievements recorded by the Food Investigation Board are progress in the gas storage of apples and other fruit, prolongation of the period during which fruit may be preserved on long voyages, preservation of beef in chilled condition for periods up to 70 days, gas preservation of bacon up to eight months, improvements in the quality of fish for the consumer, doubling of the period during which fish may be kept fresh on board trawlers.

Study of the "behavior" of different varieties of English apples in gas storage is being continued at the Ditten laboratory. There an experimental ship's hold is loaded with apples in conditions approximating as far as possible to those on board ship.

By this means it is possible to compare the efficiency, for the cargoes of foodstuffs, of the various systems of refrigeration. This work is already leading to important commercial scale experiments, and is furnishing valuable information to shippers of fruit.

Apart from this ship's hold experiment, further progress had, it is shown, been made in the commercial gas storage of apples—a method in which the amount of carbon dioxide in the atmosphere is increased with a corresponding diminution in the amount of oxygen. There are now 12 gas stores for apples in operation in England.

In July last year there arrived at Southampton from New Zealand the first commercial consignment of chilled meat to be carried overseas in gas storage—that is, in air to which carbon dioxide has been added to a controlled concentration.

Previously it had not been found feasible to bring beef to this country from Australia and New Zealand in chilled condition; it had to be frozen. Since then it has been demonstrated that beef can be held in perfect condition in the chilled state for as long as 67 days in an atmosphere containing 10-20 per cent of carbon dioxide.

There can be no doubt now, the report says, that gas storage can provide a solution of the problem of preserving meat in chilled condition over great distances. Provided the necessary gas-tightness can be secured in ship's refrigerated spaces, the method should enable Australia and New Zealand to send beef to this country chilled.

With regards to bacon, special investigations of tank curing have been carried out, in view of the reorganization of the hog industry. Experiments on gas storage have been continued with pork and bacon.

Mild-cured bacon has been stored in an atmosphere of carbon dioxide at a temperature of 32° F. for 18 weeks.

Brunswick-Balke Runs Own Cooling Unit Test

CHICAGO—All mechanically refrigerated instantaneous cooling units used in Brunswick-Balke-Collender bars are, before shipment, laid out on the test floor, all necessary parts attached, and the unit tested.

Real beer is run through the coils and the refrigeration system is tested with temperature recording clocks and a record made of the watt hours, percentage of running time and other factors.

McCray Equips Hotel at Mackinac Island

MACKINAC ISLAND, Mich. — The Grand hotel, famed as a stopping place for vacationers, has recently been equipped with a new McCray commercial refrigerator cabinet for the storage of bottled beer, cold meats, and cheeses. The sale was made by E. E. Pauly & Co., McCray distributor in Cheboygan, Mich.

C. V. Hill Revises Book on Food Merchandising

TRENTON, N. J.—C. V. Hill & Co., Inc., has recently brought out a second, revised edition of the book "Modern Food Merchandising" which it first published several months ago. One of the new chapters in the second edition deals with "Refrigeration, how to purchase it wisely and how to use it efficiently."

Food Consciousness of Housewives Causes Market Changes

MILWAUKEE—Paul R. Hahn, veteran meat retailer here who recently equipped his store with Frigidaire commercial refrigeration, declares that one of his reasons for installing the new equipment was that modern housewives, alert readers of newspapers, are watching the handling of foods and meats more closely now than ever before as a result of the epidemic of amoebic dysentery, spread of typhoid, and other diseases traceable to careless food preservation.

"During the last 8 or 10 months, housewives have been more conscious of proper food handling than in any time in the 30 years I have been in the meat business," Mr. Hahn declared.

New Cincinnati Market Has Frigidaire System

CINCINNATI — The Bilker Food Market here, an establishment serving a clientele of such size that 8 delivery trucks and five telephone clerks are employed to handle the orders, has recently been equipped with Frigidaire commercial refrigeration equipment.

The Frigidaire coils and compressors handle one meat display case, one fish and poultry display case, two double-duty delicatessen cases, and walk-in coolers for fresh meats, smoked meats, and vegetables.

While most of the store's business is in telephone buying, George Bilker, the manager, declares that the modern equipment is necessary to impress the housewives when they do happen to drop in.

Cafe at Nela Park Installs G-E Commercial Units

CLEVELAND — When Joe Aveni's Nela Stone Cafe was enlarged and redecorated recently, it was equipped with a G-E conditioned air refrigerator, Model CS-451, and G-E-Russ beer coolers.

Livestock Farm Provides New Market for Storage Coolers

GREENVILLE, Miss. — Frank S. Aldridge of this city, salesman of McCray commercial refrigerators, recently found a new market for refrigeration equipment in the form of a farmer who decided to be his own meat packer.

Mr. Aldridge sold a manually controlled gasoline-engine operated condensing unit and a large cooler to George H. Uzzell of Glen Allen, Miss. What Mr. Uzzell plans to do is to slaughter his own cattle and hogs and market them wholesale through local meat stores, besides selling some in his own store.

Crosley Kool-Rite Used In Boston Liquor Store

BOSTON — Murray's liquor store here has been equipped with a Crosley Kool-Rite electrically refrigerated bottled beer cooler.

On the Kool-Rite is lettered, "Ales, Beers, Ginger Ale and all kinds of mixers—Kept Cool at all times."

South American Plant Installs G-E Equipment

RIO DE JANEIRO, Brazil—Three commercial refrigeration installations were made for Standard Brands, Inc., to take care of their operations at Bahia, Porto Alegre, and Sao Paulo, by the Lojas General Electric, S. A., states E. C. Givens.

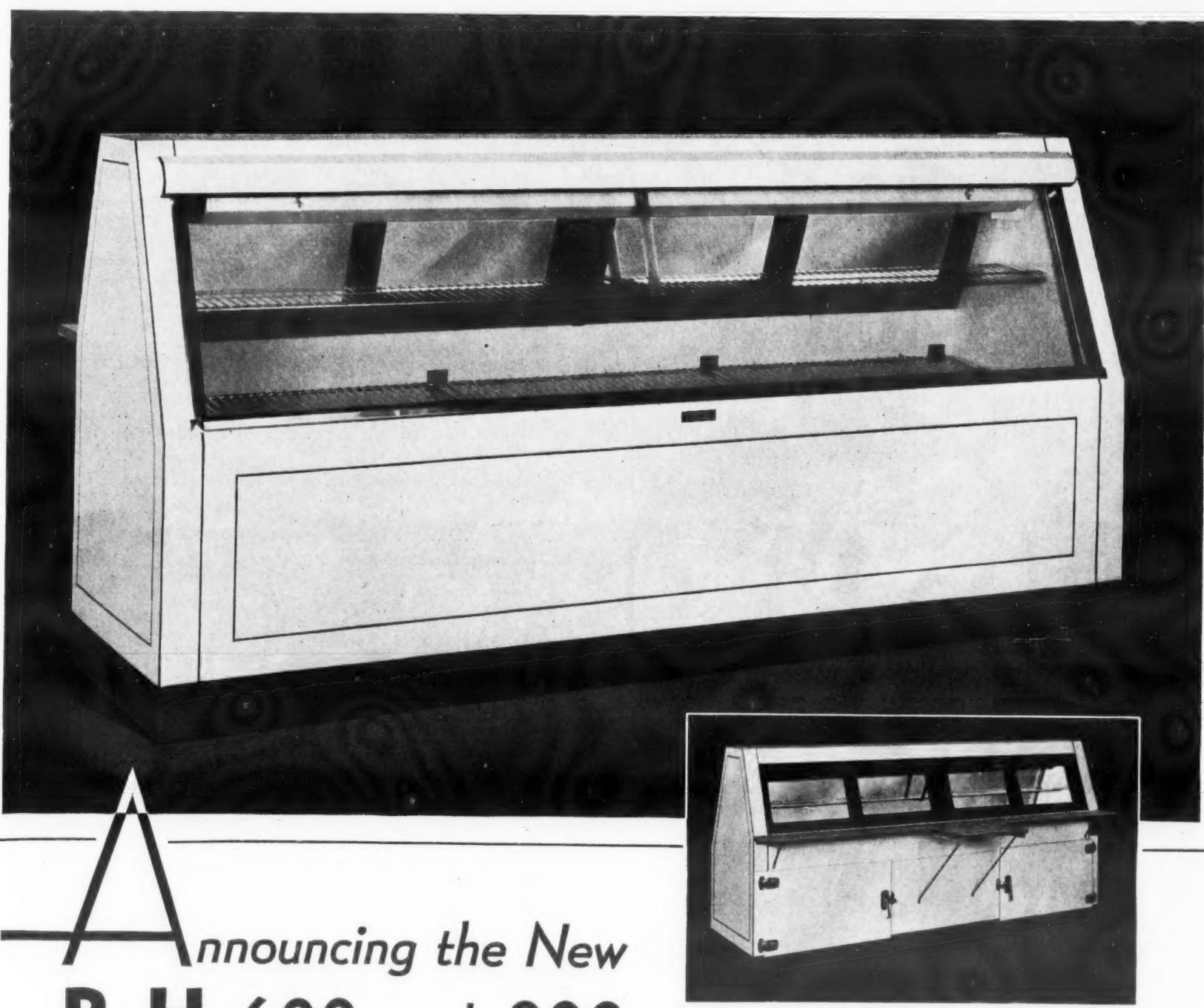
The first two are walk-in coolers of 500-cu. ft. capacity and the third is 720 cu. ft.

Installations of this equipment were made under the supervision of Mr. McIntyre, who recently went to Brazil from Electric Appliances, Inc., San Francisco.

Division Refrigeration, Ltd. Formed in Chicago

CHICAGO—Division Refrigeration, Ltd., has been formed here to distribute the "Silver Flash" beer-cooling system and commercial refrigeration machine equipment in the greater Chicago area.

L. J. Lavonne is president and treasurer of the company and Donald Vandercook is vice president and sales manager.



Announcing the New P-H 600 and 800 DISPLAY CASES

Double Duty Cases of Unsurpassing Quality at an

AMAZINGLY LOW PRICE

THESE new 6 and 8 ft. models, the newest additions to the Puffer-Hubbard Line of quality refrigeration display cases, will fill the needs of 85 to 95 percent of your prospects among grocery, delicatessen, fruit and provision stores, dairy outlets

and restaurants . . . Manufactured on a mass production basis, they are quality jobs through and through, in keeping with P-H standards, yet are priced within the reach of even the smallest user. They embody all the features of cases sold at twice their price. They are double duty cases—display and storage—yet cost no more than ordinary reach in boxes having less capacity and no display facilities . . . Puffer-Hubbard cases are sold through refrigeration dealers only, making it possible for you to sell a package job completely installed at a price that will blanket competition and provide additional profit for you. Full information, prices and liberal discount schedule available upon request. Puffer-Hubbard Manufacturing Co., Minneapolis, Minn.

PUFFER-HUBBARD MANUFACTURING CO.

Makers of High Quality Refrigerated Display Cases, Coolers and Dispensing Equipment

THE NEW P-H 800-S. (Illustrated) Length 8 Ft. Insulation 3" Armstrong Corkboard. Doors and Guides, full hard rubber. Glass 2 or 3 thicknesses 1/4" plate. Exterior finish high baked Dulux. Interior rust proof galvaneal high baked Dulux. 600-S. Same specifications except 6 Ft. length

Universal Cooler

Universal Cooler Corp., 7424 Melville Ave., Detroit, Mich.

Model Nos.	251	332	W 332	602	W 502	752	W 752	1002	W 1002	1502	W 1502	W 2002	W 2003	W 3003	W 5003	W 7503	W 10003	W 15003
Compressor Specifications																		
Refrigeration																		
capacity	138	305	397	517	662	623	788	980	1188	1163	1612	2125	2499	3475	5853	10108	11708	14430
Motor size (hp.)	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$	1	1	$1\frac{1}{2}$	$1\frac{1}{2}$	2	2	3	5	$7\frac{1}{2}$	10	15
Compressor speed (r.p.m.)																		
F-12 models	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	270	345	425
CH ₂ Cl models	320	320	320	320	360	360	430	275	320	320	400	480	400	480	480	345	400	...
Bore (in.)	1.8125	1.8125	1.8125	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.5	2.5	3.25	4.0	4.0	4.0
Stroke (in.)	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	3	3	3	3	3	3	3	3	$4\frac{1}{4}$	$4\frac{1}{4}$	$4\frac{1}{4}$
No. of cylinders	1	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3
Charge of refrigerant (lbs.)																		
F-12 models	...	...	...	...	...	...	...	10	10	10	10	12	14	14	16	20	20	20
CH ₂ Cl models	2	$3\frac{1}{2}$	$3\frac{1}{2}$	4	$4\frac{1}{2}$	$4\frac{1}{2}$	5	8	8	8	8	8	12	12	14	$17\frac{1}{2}$	$17\frac{1}{2}$	...
Pump down capacity of receiver (lbs.)																		
CH ₂ Cl models	2.5	4.5	4.5	5.4	5.4	5.4	5.4	17	17	17	17	17	29	29	29	46	46	67
Quantity of oil in system																		
(pts.)	1	$2\frac{1}{2}$	$2\frac{1}{2}$	3	3	3	3	6	6	6	6	6	8	8	9	12	12	12
Overall Dimensions (in.)																		
Width	24	$31\frac{1}{2}$	$31\frac{1}{2}$	$31\frac{1}{2}$	$31\frac{1}{2}$	$31\frac{1}{2}$	$31\frac{1}{2}$	$38\frac{1}{4}$	$38\frac{1}{4}$	$38\frac{1}{4}$	$38\frac{1}{4}$	$38\frac{1}{4}$	$52\frac{1}{4}$	$52\frac{1}{4}$	$52\frac{1}{4}$	$59\frac{3}{4}$	$59\frac{3}{4}$	$59\frac{3}{4}$
Depth	$14\frac{1}{2}$	20	20	20	20	20	20	16 $\frac{1}{2}$	16 $\frac{1}{2}$	16 $\frac{1}{2}$	16 $\frac{1}{2}$	16 $\frac{1}{2}$	25	25	25	32 $\frac{3}{4}$	32 $\frac{3}{4}$	32 $\frac{3}{4}$
Height	$19\frac{1}{4}$	$23\frac{1}{2}$	$23\frac{1}{2}$	$23\frac{1}{2}$	$23\frac{1}{2}$	$23\frac{1}{2}$	$23\frac{1}{2}$	30	30	30	30	30	31	31	$31\frac{1}{2}$	$35\frac{1}{2}$	$35\frac{1}{2}$	$35\frac{1}{2}$
Compressor																		
Type of system	Open																	
Type of compressor	Reciprocating																	
Compressor drive	Belt																	
Type of shaft seal	Bellows																	
Cylinder head cooled by	Water																	
Type of lubricating system	Splash																	
Oil level measured by	Models 1002-W and up, Bulls-eye glass																	
Type of compressor oil	White Star																	
CH ₂ Cl—models, No. 425; F-12 models, No. 414; Standard oil—CH ₂ Cl models, No. 4049; F-12 models, No. 4696	240-260 C.																	
Viscosity of compressor oil	100° C.																	
					Refrigerant								Materials Used					
					Kind used, W15003—F-12; 1002 to W10003, inclusive—F-12 or CH ₂ Cl; others—CH ₂ Cl								Cylinder block Semi-steel Pistons Semi-steel Condenser tubing Copper					
					Condenser and Liquid Receiver								Control					
					Method of cooling....W models—water; others—air								Make of control Penn					
					Type of condenser.....Air—radiator; water—double tube								Type of control Pressure Models with high pressure cut out Type of overload cut out.....Cutler-Hammer					
					Location of condenser.....3 cyl. units—between compressor and motor; others—opposite motor								Make of water regulating valve....Penn					
					Type of liquid receiver.....Horizontal								Valves					
					Models with fusible safety plug All								Type of piston valves Disc					
					Models with refrigerant filter All								Type of discharge valves Disc					

Bedell Systems

Bedell Engineering Co., 5400 Santa Fe Ave., Los Angeles, Calif.

Model Nos.	GAM		EAM		Air Cooled BAM		CAM	DAM	EWM		Water Cooled BWM		CWM	DWM		DWMS
Compressor Specifications																
Refrigeration capacity* .....144	300	345	720	976	1171	1944	2640	414	456	1171	1171	2332	3168	3552	7000	
Motor size (hp.) 1/4	300	3/8	350	1/2	3/4	1	1 1/2	2	3	1 1/2	3/4	1	1 1/2	2	3	5
Compressor speed (r.p.m.) .350	300	350	300	350	400	350	350	250	400	350	400	350	350	400	550	
Bore (in.) 1 1/2	1 1/2	1 1/2	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	1 1/2	1 1/2	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4
Stroke (in.) 1 1/2	1 1/2	1 1/2	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	1 1/2	1 1/2	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4
No. of cylinders 1	2	2	2	2	2	2	4	6	2	2	2	2	4	6	6	6
Charge of refrigerant (lbs.) 5	5	5	7	7	7	9	15	4	4	7	7	9	15	15	20	
Pump down capacity of receiver (lbs.) 7	7	7	15	15	15	20	30	6	6	15	15	20	30	30	40	
Oil in system (pts.) 1 1/2	4	4	4	4	4	8	20	4	4	4	4	8	20	20	20	
Overall Dimensions (in.)																
Width 16	16	16	30	30	30	33	33	16	16	30	30	33	33	33	33	42 1/2
Depth 14	22	22	21	21	21	27	33	22	22	21	21	27	33	33	33	
Height 15	18	18	22	22	22	23	23	18	18	22	22	23	23	23	27	
*Refrigeration capacity given in lbs. of ice-melting effect per 24 hours' operation under ASRE rating of 5° F. evaporator and 86° F. room temperature.																

*Refrigeration capacity given in lbs. of ice-melting effect per 24 hours' operation under ASRE rating of 5° F. evaporator and 86° F. room temperature.

More than a million "GENUINE DETROIT" expansion valves have been sold.

DETROIT LUBRICATOR COMPANY

DETROIT, MICH., U. S. A.

Canadian Representative: Railway and Engineering Specialties, Ltd., Montreal, Toronto and Winnipeg

Compressor
Type of system Open
Type of compressor Reciprocating
Compressor drive Belt
Type of shaft seal Biscorer
Cylinder head cooled by Air
Type of lubricating system Splash
Viscosity of compressor oil 300

Refrigerant
Kind used Methyl chloride

Condenser and Liquid Receiver
Type of condenser Finned tube
Location of condenser Side of machine
Type of liquid receiver Horizontal
Models with fusible safety plug All
Models with refrigerant filter All

Materials Used
Cylinders Cast iron
Condenser tubing Copper
Condenser shell Steel

Control
Make of control Penn
Type of control Pressure
Models with high pressure cut out All
Models except GAM On

Valves
Type of piston valves Disc
Type of discharge valves Disc

Special features
*Refrigeration capacity given in lbs. of ice-melting effect per 24 hours' operation under ASRE rating of 5° F. evaporator and 86° F. room temperature.

ANSUL GIVES

Extra Quality at no extra cost

When you buy an Ansul Refrigerant, whether it is SULPHUR DIOXIDE or METHYL CHLORIDE you are certain of receiving a product that will give complete refrigerating satisfaction. To guarantee this, every cylinder is analyzed before shipment. You pay no premium for this service. It is but a part of Ansul's customary practice in providing their customers with the best at all times.

ANSUL CHEMICAL CO.
MARINETTE - WISCONSIN

Starr Freeze

Starr Co., Richmond, Ind.

Model No.	B1SA B1MA	B5SA B5MA	B9SA B9MA	B13SA B13MA	B25W B25W	B6SW B6SW	B10SW B10SW	J1SA J1SA	J5SA J5SA
Refrigeration capacity (M models)	277	371	423	697	362	524	715	167	201
(S models)	261	327	393	420	209	342	513	130	154
Motor size (hp.) (M models)	1/4	1/2	1/2	3/4	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
(S models)	1/4	1/2	1/2	3/4	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
Compressor speed (r.p.m.) (M models)	300	400	500	750	425	550	750	500	600
(S models)	400	500	600	750	400	500	750	550	650
Bore (in.)	1.64	1.64	1.64	1.64	1.64	1.64	1.64	1.125	1.125
Stroke (in.)	1.625	1.625	1.625	1.625	1.625	1.625	1.625	1.25	1.25
No. of cylinders	2	2	2	2	2	2	2	2	2
Quantity of refrigerant in system (lbs.) (M models)	3 1/2	3 1/2	4 1/2	4 1/2	3 1/2	4 1/2	4 1/2	1 1/2	1 1/2
(S models)	5	6	6	6	5	6	6	2 1/2	2 1/2
Pump down capacity of receiver (lbs.) (M models)	5.25	5.25	5.25	5.25	6.5	6.5	6.5	2.25	2.25
(S models)	6.4	6.4	6.4	6.4	7.25	7.25	7.25	2.75	2.75
Overall Dimensions (in.)									
Width	25 1/2	25 1/2	29	29	29 1/2	29 1/2	29 1/2	20	20
Depth	18	18	19	19	16 1/2	16 1/2	16 1/2	15	15
Height	15 1/2	15 1/2	18	18	22	22	22	15	15

Model No.	J2SW J4MW	J6SW J8MW	D1SA D3MA	D5SA D7MA	D9SA DD11MA	DD13SA DD15MA	D4MW D2SW	DD12MW DD10SW
Refrigeration capacity (S models)	171	207	672	960	1408	688	985	1444
(M models)	136	161	474	609	806	1084	706	1036
Motor size (hp.) (M models)	1/4	1/2	3/4	1	1 1/2	1 1/2	1 1/2	1 1/2
(S models)	1/4	1/2	3/4	1	1 1/2	1 1/2	1 1/2	1 1/2
Compressor speed (r.p.m.) (M models)	500	600	350	500	733	350	500	733
(S models)	550	650	350	450	600	350	500	733
Bore (in.)	1.125	1.125	1.125	1.125	1.125	1.125	1.125	1.125
Stroke (in.)	1.25	1.25	1.25	2.0	2.0	2.0	2.0	2.0
No. of cylinders	2	2	2	2	2	2	2	2
Quantity of refrigerant in system (lbs.) (M models)	1 1/2	1 1/2	4	5	6	4	5	6
(S models)	2 1/2	2 1/2	5	6	7	5	6	7
Pump down capacity of receiver (lbs.) (M models)	2.25	2.25	10	10	10	12	12	12
(S models)	2.75	2.75	12	12	12	12	14	14
Overall Dimensions (in.)								
Width	20 1/2	20 1/2	31	31	31	31	32 1/2	32 1/2
Depth	15 1/2	15 1/2	21 1/4	21 1/4	21 1/4	21 1/4	20	20
Height	16 1/2	16 1/2	24 1/4	24 1/4	24 1/4	24 1/4	25 1/4	25 1/4

Model No.	ATSA ABSA	AV3MA A4MW	A1SA A2SA	E3MA E1SA	E7MA E5SA	E4MW E2SW	E8MW E6SW
Refrigeration capacity (M models)	191	196	191	2010	2440	2062	2796
(S models)	98	134	134	1417	1721	1479	2006
Motor size (hp.) (M models)	1/4	1/2	1/2	2	3	2	3
(S models)	1/4	1/2	1/2	1 1/2	2	1 1/2	2
Compressor speed (r.p.m.) (M models)	408	408	408	350	425	350	475
(S models)	300	408	408	350	425	350	475
Bore (in.)	1.64	1.64	1.64	3.0	3.0	3.0	3.0
Stroke (in.)	1.625	1.625	1.625	3.0	3.0	3.0	3.0
No. of cylinders	1	1	1	2	2	2	2
Quantity of refrigerant in system (lbs.) (M models)	1 1/4	1 1/4	1 1/4	8 1/2	10	8 1/2	12
(S models)	2 1/2	2 1/2	2 1/2	12	15	12	18
Pump down capacity of receiver (lbs.) (M models)	2.25	2.25	2.25	12	18	18	18
(S models)	2.75	2.75	2.75	14	20	20	20
Overall Dimensions (in.)							
Width	17 1/2	14	18 1/4	18 1/4	34	18	18
Depth	14	14	14	25	25	17 1/4	17 1/4
Height	12 1/2	22	14 1/2	14 1/2	27	20 3/4	20 3/4

Compressor
Type of system Open
Type of compressor Reciprocating
Compressor drive Belt
Cylinder head cooled by Air and water
Type of lubricating system Splash
Viscosity of compressor oil Arctic "C" heavy

Condenser & Liquid Receiver
Method of cooling A models—air; W models—water
Type of condenser Air-cooled models—finned tube; water-cooled models—counter flow
Type of liquid receiver Horizontal
Has receiver fusible safety plug On special order

Valves
Type of discharge valve Reed and disc
Type of suction valve Disc
Make of water valve Penn

Refrigerant
Kind used Methyl chloride or sulphur dioxide

Control
Make of control Penn or as required
Type of control Pressure and temperature
High pressure cut-out All water models
Point of operation of cut-out Methyl chloride—150 lbs.; sulphur dioxide—135
Condensing water flow controlled by Penn automatic water valve
Type of overload cut-out High pressure

Materials Used
Cylinder block Cast iron
Pistons Cast iron
Condenser tubes Seamless copper
Condenser shell Seamless steel
Quantity of lubricant in system E models—22 oz.; D models—4 pts.; J models—15 oz.; A models—15 oz.; E models—7 1/2 pts.

*M models—methyl chloride; S models—sulphur dioxide.

Dole

Dole Refrigerating Machine Co., 663 Washington Blvd., Chicago, Ill.

Model Nos.	BB	C	CCX	CC	D	F
Refrigeration capacity	1000	1400	2000	2700	4000	5400
Motor size (hp.)	3/4	1 1/2	2 1/2	3	5	7
Compressor speed (r.p.m.)	350	300	350	300	350	300
Bore (in.)	2 1/4	2 1/2	2 3/4	3	3 1/2	4
Stroke (in.)	2	2 1/2	2 1/2	3	3 1/2	4
No. of cylinders	1	1	1	1	2	2
Pump down capacity of receiver (lbs.)	8	16	18	20	30	40
Quantity of oil in system (pts.)	3	5	5	6	7	9
Overall Dimensions (in.)						
Width	38	44	44	44	48	51
Depth	24	26	26	30	36	39
Height	35	38	38	41	36	43

Compressor
Type of system Open
Type of compressor Reciprocating
Compressor drive Belt
Type of shaft seal Own
Cylinder head cooled by Air and water
Type of lubricating system Splash
Oil level measured by Oil gauge
Type of compressor oil Arctic "C" heavy

Condenser and Liquid Receiver
Condenser cooled by Water
Type of condenser Flue
Location of condenser Machine base
Type of liquid receiver Horizontal

Materials Used
Cylinder block Semi-steel
Condenser tubing Steel
Condenser shell Steel

Valves
Type of piston valves Poppet
Type of discharge valves Plate

Refrigerant
Kind used Ammonia

THE BRAINS OF THE REFRIGERATOR

Every good refrigerator needs a control that is dependable. Ranco Thermostat, tested in over a million homes, now offers the new KR for 1935 in a variety of models ranging from simple temperature control to semi-automatic fast freeze and semi-automatic defrost.

AIR CONDITIONING

2,000 Tons of Refrigeration To Cool Gold Mine

NEWARK—Air conditioning of the Robinson Deep Mine near Johannesburg, a large African gold mine and one of the two deepest shafts in the world, has attracted world-wide interest not only because it is claimed by Carrier Engineering Corp. to be the largest air-conditioning installation in the world, but also because economic experts believe that the application of air conditioning to gold mines may so increase their production that it will be possible for governments to return to the gold standard.

Two thousand tons of refrigeration capacity are to be installed for the mine, and fan equipment to move 400,000 cu. ft. of conditioned air per minute at a velocity of 2,000 ft. per minute. The air to be handled will weigh more than the ore extracted in a corresponding period.

The air-conditioning system will cool and dehumidify air at the surface of the earth, forcing it down 8,000 ft. to the depth of the mine, where it will be picked up and circulated through the workings of the mine's ventilating system.

The installation includes three Carrier centrifugal refrigerating machines, 750 hp. each, using Carrene. Two double width fans operated by 75-hp. motors will discharge air from the dehumidifier into an underground tunnel entering the shaft proper 100 ft. below the surface.

The dehumidifier, or spray chamber, will be located with the refrigerating machines, and will be 50 ft. long and 16 ft. high. Under extreme conditions more than 1,500 gallons of water per hour will be extracted in dehumidification.

3,000 Horsepower of Energy

Approximately 3,000 hp. of electrical energy is required to operate the refrigerating machines, spray pumps, cooling water pumps, control apparatus, etc.

About 8,400 gallons of spray water per minute will be used, 7,500 gallons being required just to dissipate heat extracted from the air during the cooling process. Carrier engineers say the spray pond for the condensing water will be about the size of a football field.

Principal object of installing air conditioning in the Robinson mine is to increase the efficiency of the miners by providing more comfortable working conditions, and thereby extend operations to depths at which it has heretofore been impossible to work because of high temperatures and humidities.

In many of the deep gold mines in the Rand district, dry-bulb temperatures range from 100 to 120° F. with a relative humidity from 90 per cent to 100 per cent saturation are reached.

Causes of Conditions

These conditions are caused by:

1. Excess moisture within the mine workings due to water seepage and the necessity of wetting down the rock during drilling and blasting to reduce the amount of dust.

2. Rapid increase in rock temperatures as depth into the earth is increased.

3. Rapid increase in the temperature of the air due to adiabatic compression as the depth is increased. This amounts to an increase of 5° F. in air temperature for every 1,000 ft. of depth.

4. Heat generated by oxidation of the various elements in the soil or rock.

5. Other sources of heat such as frictional heat given off by machinery, explosives, body heat of miners, etc.

Studies of working efficiency in atmospheres of high temperatures and various humidities indicate that only 30 per cent as much work can be accomplished in air at 100° F. and 100 per cent relative humidity as in air at 100° and 60 per cent relative humidity, Carrier engineers state.

The South African gold mining syndicates employ about 250,000 men in the mines. There are about 40 mines in operation in the Rand district. Most of them are now reaching considerable depths, the average being 3,000 ft. A number of important mines, including the Robinson, have been sunk to depths exceeding 7,000 ft.

The mines extend over a vast plateau, 6,000 ft. above sea level situated 30 miles from Johannesburg. The geologic formation consists of hard quartz conglomerate of unknown depth. More than half the world's gold supply now comes from this region. In the past 45 years \$5,000,000,000 of gold has been taken out of the African mines. Between \$50,000,000 and \$60,000,000 in gold is extracted yearly.

The decision of the mine owners to

proceed with the air-conditioning installation followed a year's first-hand study of the various problems involved. This survey was undertaken by D. C. Lindsay, Carrier engineer, working in cooperation with Sydney Thompson & Co., Johannesburg, and with the mine engineers.

Schrafft's Newest Store Air Conditioned By Frick System

NEWARK, N. J.—Schrafft's forty-first restaurant and store, recently opened at 679 Broad St. here, has been equipped with year-round air conditioning by Automatic Refrigerating Co., distributor for Frick refrigeration.

For summer cooling, the plant employs cold water, with two 60-ton compressors maintaining a temperature of 36 to 38° F. in the water cooler.

The cold water is pumped through Aerofin coils in front of the fresh air intake on the third floor of the building.

In cold weather steam is pumped through the coils, direct heating being used only as an auxiliary. It is expected that radiators will be needed only in front of glass.

There is no recirculation of air in this system. Some years ago a Schrafft's unit tried the conventional practice of recirculating 75 per cent of its air in each change and decided that the plan was unsatisfactory for

use in a restaurant of this type, because the odors were not carried away completely.

The compressors start and stop automatically, the control being set at 10° F. below outside temperature in hot weather.

Temperature in the store never drops below 76° F. unless the outside temperature is below that level. Relative humidity is kept at 50 per cent. Schrafft's has found that reduction in humidity is a greater comfort factor than lowering of temperature.

Kitchens and bakery have a separate ventilating system with a complete air change once a minute. In winter incoming fresh air is heated to a maximum of 65° F., the heat from cooking apparatus supplying additional heat.

During the summer air supplied to the cooking quarters is not cooled, but the rapid change of air provides comfort, and some of the air conditioning in the dining room makes itself felt in the kitchens.

Paper Co. Installs Carrier System

CINCINNATI—One of the most recent air-conditioning installations in this area is in the building of the Wrenn Paper Co. at Middletown, O., where a 5-hp. Carrier system was installed by the Harten-Knodel Co., Carrier and Norge distributor in this city.

The system is of the central type, and is designed to cool, heat, humidify, dehumidify, clean, and circulate the air. The compressor, which uses methyl chloride as the refrigerant, is installed in the basement and supplies cooling by direct expansion.

A Carrier Weathermaker having two Aerofin coils comprise the high side of the system, which will condition a space of 20,000 cu. ft. Penn controls are employed. An 80° temperature, with 50 per cent relative humidity, is maintained.

Conditioned air, 25 per cent of which is fresh, is sent by Carrier blowers through riser cabinets near the floor of the conditioned space. Air distributing outlets in the cabinets were made by Uniflo. No special insulating was done for this job.



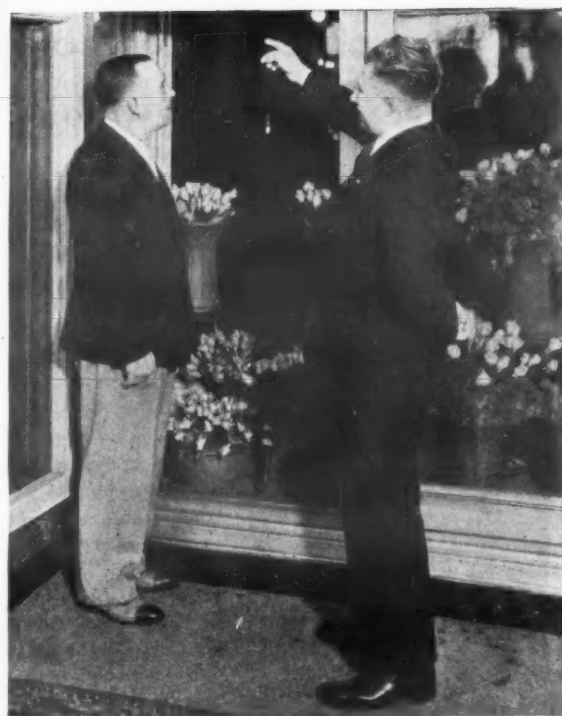
... if it isn't written, or spoken, that is the thought that lies behind every order for flowers. And that is one reason so many florists choose this modern safe refrigerant, "FREON."

HOW to keep delicate, fragile flowers fresh and beautiful—that is an ever-present problem with florists! If the air is hot and dry—if there is a faulty refrigeration system—flowers wither and perish long before they should.

Many florists have solved this vexing problem by using the modern refrigerant, "Freon," in a correctly designed air-conditioning system. This refrigerant is safe. It is odorless when mixed with air. Even if the evaporator were punctured and "Freon" escaped, it would not destroy the beauty, color and fragrance of flowers.

In addition to florists, there are many prospects in your city who could profit by the use of "Freon." Tell them about the outstanding qualities of this refrigerant. It is today's ideal refrigerant wherever safety of goods is a requirement.

Managers of fur storage vaults, merchants who sell perishable foods and fruit, photographers, managers of museums, meat market owners, use "Freon" for air-conditioning and refrigeration. And in hotels, apartments, theatres, homes, office buildings and trains, "Freon" provides cooling comfort and safety for thousands of people.



Florist's shop. Air-conditioned with "Freon" by Frigidaire Corporation, Dayton, Ohio

FREON

REG. U. S. PAT. OFF.

a safe refrigerant



KINETIC CHEMICALS, INC., TENTH & MARKET STREETS, WILMINGTON, DELAWARE

SERVICE

How to Service Majestic Standard 'Open Type' Machines

First Installment on Majestic Standard Models Describes Rotary Compressor and Auxiliaries

GRIGSBY-GRUNOW CO., Chicago manufacturer of Majestic radios and refrigerators, produced two conventional "open-type" refrigerators, in addition to its more complete line of Majestic hermetics. The two conventional models were known as Standard models 335 and 345 with lacquer exterior finish. The same refrigerators, but with porcelain exteriors were termed models 835 and 845. These had the condensing unit in the bottom of the cabinet.

Model 335 had a shelf area of 8.5 sq. ft., with a gross capacity of 4.0 cu. ft. and a net of 3.5 cu. ft. Model 345 had a gross rating of 5.3 cu. ft., a net of 4.8 cu. ft. and a shelf area of 10.7 sq. ft.

Both refrigerators used two in. of Dry-Zero insulation, an interior finish of porcelain, and a 1/2-hp. motor belted to the compressor to drive it at 475 r.p.m.

Service instructions on these two refrigerators, out of production since Grigsby-Grunow was placed in bankruptcy in the spring of 1934, will be published in a series of two or three articles in *ELECTRIC REFRIGERATION NEWS*, starting with this issue. Service instructions on the Majestic hermetic machines was described in the Aug. 16, 1933 issue of the *NEWS*.

Replacement parts for all Majestic refrigerators are available by addressing the factory at 5801 Dickens Ave., Chicago, Ill., which is in charge of Frank McKey, receiver in bankruptcy for the company.

The Standard Majestic condensing unit was made in two models, namely model No. 50, used in the 335 and No. 835 cabinets, and the model No. 51 unit used in the 345 and No. 845 cabinets. The construction of the units is primarily the same except for electrical equipment, control and finned evaporator. (See Figs. 7 and 8.)

The unit is of the package type so constructed that the complete assembly may be replaced in the customer's home when necessary without pumping down the system or breaking any fittings of the system. The only precaution to be taken is closing the discharge and suction shut-off valves on the top of the compressor.

The unit is mounted on four rubber balls in the base of the cabinet. The rubber balls prevent unit vibration from being transmitted to the cabinet.

The liquid and suction lines are enclosed in flexible steel conduit as a protection against injury, bending and vibration.

The Model No. 50 unit consists of a heavy pressed steel mounting base upon which are mounted the compressor assembly, motor, condenser, liquid receiver and motor starting, tempera-

ture control, and motor protector assembly.

Mounting Base

The unit mounting base is of heavy pressed steel construction. The base is provided with large holes to facilitate air circulation up from the floor where comparatively cool air is available.

The base is drilled to accommodate most makes of standard refrigeration motors for all types of current supply. The angle construction at the edges and around air circulating holes, and the raised construction across the center of the base provide a rigid construction that cannot buckle in shipment or cause vibration.

Compressor Assembly

The compressor assembly (Fig. 2) consists of a pump of the semi-pendulum rotary type mounted on a cast iron cover plate which is secured to a heavy cast iron compressor case. The compressor case acts as a mounting for the stuffing box seal and discharge and suction shut-off valves.

The pump, which is driven at approximately 475 revolutions per minute, consists of three moving parts, namely, shaft, impeller, and vane. The parts of the pump are the rear bearing plate, pump body, front bearing plate, shaft, impeller, vane, seal assembly, cover plate, housing, seal retaining plate, and gaskets.

The pump assembly is built up on the cast-iron cover plate. The rear bearing plate is placed in position on the cover plate and the pump body secured to it with bolts having the heads counterbored in the body.

The impeller and shaft provide a seal clearance (see Fig. 3) between impeller and body of 7/10,000 of an inch. The vane is placed in position and the front bearing plate bolted in place. The oil ring is placed over the shaft and held in place by the ring retainer.

The pump vane which divides the high and low side during compression is of novel design, in that a cylindrical head on the vane oscillates in a cylindrical slot in the impeller and pistons in a vertical slot in the pump body due to the motion of the pump impeller.

This construction provides a positive contact between impeller and

Compressor Assembly

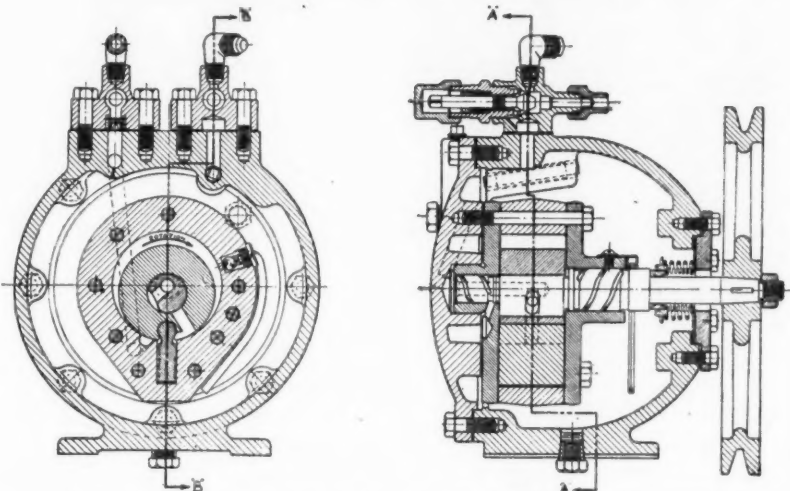


Fig. 2—End view and side view of Majestic compressor.

vane, eliminating the necessity of a spring for keeping the vane against the impeller as is the case with other compressors of similar design.

The front bearing plate, which is bolted and welded to the pump body, serves as the main bearing of the pump.

The oiling of the bearings and the pump parts is accomplished in the following manner: The oil is picked up from the pump housing by an oil ring which rides on a portion of the shaft which extends through the front bearing plate.

The oil is deposited in a circular groove in the shaft and is then carried through the bearing by two helical grooves cut in the pump shaft. After the oil has passed through the bearing, it is forced through the clearances of the pump due to the difference in pressure between the pump case and displacement chamber of the pump.

The oil is then discharged with the compressed gas to the sump at the end of the shaft where a portion is carried through the rear bearing by two helical grooves to lubricate the bearing and act as a seal for the pump.

The vane is provided with three horizontal grooves toward the discharge side of the pump. These grooves become filled with oil for lubrication and gas sealing.

Two grooves ground diagonally across the other side of the vane serve as a bypass connecting the space between the end of the vane and bottom of the vane slot and the suction side of the compressor to

prevent oil locking below the vane.

The method of exhausting the compressed gas from the Majestic pump is distinctive in that ports are used instead of the conventional type of flapper or discharge valve used on practically all makes of refrigeration compressors.

The pump is so constructed that as the shaft revolves a groove in the eccentric lines up with a radial hole in the pump impeller. The groove in the eccentric is connected with a hole drilled in the rear end of the shaft.

When the shaft reaches a predetermined angle in its revolution, the discharge ports open and allow the compressed gas to be forced from the compression chamber through the cen-

ter of the shaft to a sump in the cover plate.

A radial hole drilled in the cover plate conducts the gas to the compressor case. The parts and the construction of the exhaust system act as a muffler for the exhaust noises which are characteristic of compressors using the conventional flapper valves.

Seal

The seal is of the bellows type located on the high side of the system. It has a special bronze metal bearing surface that insures a perfect seat with the drive shaft.

It is fitted with a spring which insures proper tension and function of the seal under all pressure conditions. Its function is to permit the drive shaft to extend outside of compressor housing and revolve without loss of refrigerant.

Valves

The relief valve which is built into the pump body consists of a stainless steel ball which is held against the seat by a phosphor bronze spring and plug. The discharge from the relief valve is exhausted through a tube, the end of which is always submerged in oil.

The oil acts as a seal against leakage of high pressure gas into the pump in the event that the valve leaks slightly. Its function is to permit oil or liquid SO_2 to escape from the compression chamber while the compressor is in operation, thus preventing knocking or the compressor from becoming stalled.

The discharge shut-off valve nearest motor in Fig. 9 is of the three way type (Fig. 4). It is so constructed that a high pressure gauge may be

(Concluded on Page 19, Column 1)

Compression Cycle

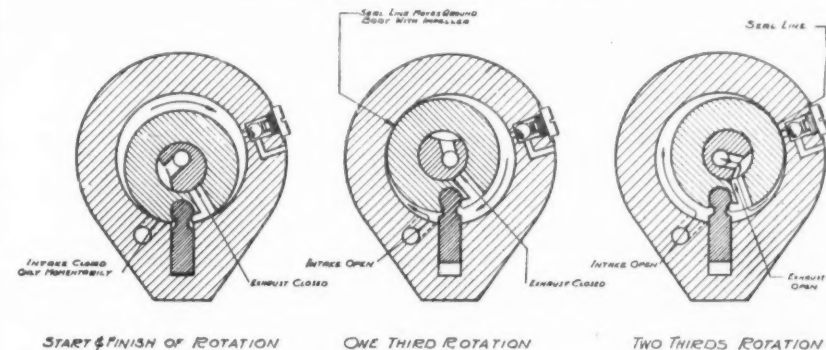


Fig. 3—Cycle of compression of Majestic's conventional compressor.

Majestic 'Standard' System

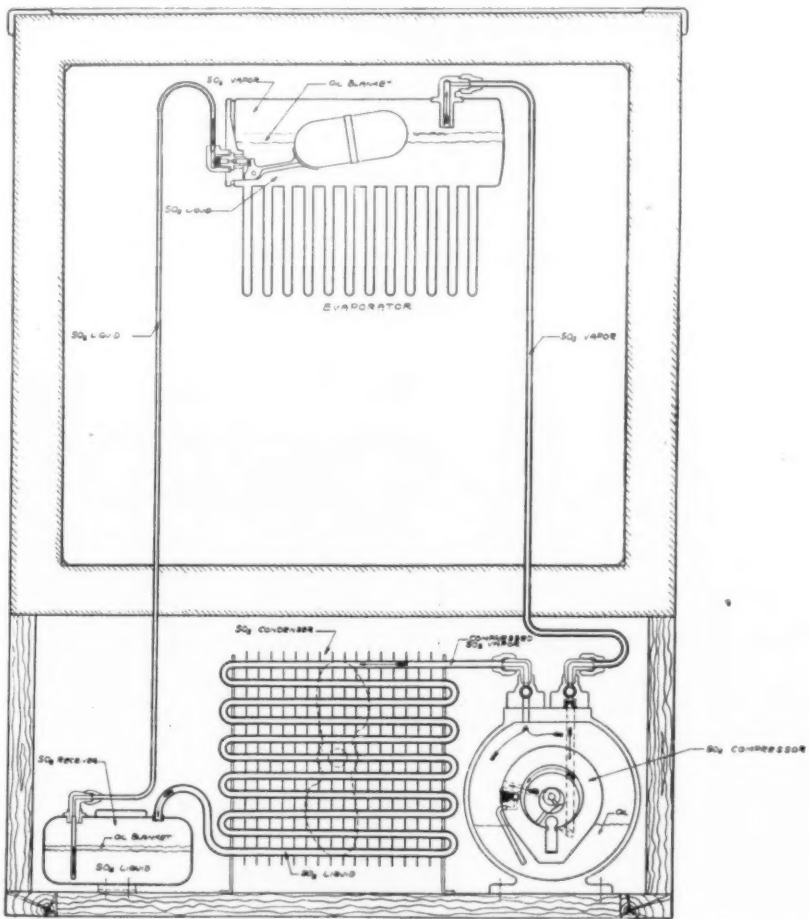


Fig. 1—Sectional diagram of operating cycle of conventional Majestic.

Those who KNOW the Operating, Service and Power Demands of Commercial Refrigerators also KNOW that Century Motors have always met them with outstanding satisfaction . . . Consult Century Engineers.

CENTURY ELECTRIC COMPANY
1806 Pine Street St. Louis, Mo.
Offices and Stock Points in Principal Cities

Century
MOTORS

Single Phase, Polyphase, Direct Current
SIZES . . . 1/250 to 600 Horse Power

for
**AIR CONDITIONING
COMMERCIAL REFRIGERATION**

Curtis

Curtis Refrigerating Machine Co., St. Louis, Mo.

Compressor Specifications		172	155	252	230	236	187	226	354	396	504	560	690	810	930	1185	1350	1750	1700	2500	3455	5855	8760	11670	504	1350
Refrigeration capacity		172	155	252	230	236	187	226	354	396	504	560	690	810	930	1185	1350	1750	1700	2500	3455	5855	8760	11670	504	1350
Motor size (hp.)		3/4	1/2	1 1/2	3/4	3/4	3/4	3/4	3/4	3/4	3/4	1/2	3/4	3/4	3/4	1	1 1/2	1 1/2	2	2	3	5	7 1/2	10	1*	3*
Compressor speed (r.p.m.)		425	470	400	470	350	400	375	350	375	375	400	400	450	350	425	350	425	450	350	450	510	525	525	375	350
Bore (in.)		1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
Stroke (in.)		1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
No. of cylinders		1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	4	4	2	2
Condensing unit charge of refrigerant (lbs.)		1	2	2	3	4	3	3	5	6	6	6	6	6	8	8	8	10	10	12	12	12	20	20	5	5
Pump down capacity of receiver (lbs.)		1 1/2	6 1/2	5	6 1/2	8 1/2	6 1/2	6 1/2	8 1/2	8 1/2	21	21	21	21	29	29	29	29	29	30	30	30	30	30	8 1/2	17
Quantity of oil in system (pts.)		5	5	7	7	1 1/4	1 1/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	4 1/4	4 1/4	4 1/4	4 1/4	4 1/4	5	5	5	6	6	2 3/4	4 1/4
Overall Dimensions (in.)																										
Length		23 1/2	23 1/2	23 1/2	23 1/2	25 1/2	17 1/4	18 1/4	29	28 1/4	30 1/2	28 1/4	29 1/2	28 1/4	36	34	35 1/2	38 1/2	36 1/2	38	51	51	66 1/2	66 1/2	29 1/2	32 1/2
Width		15 1/4	15 1/4	16 1/4	16 1/4	15 1/4	14 1/4	14 1/4	16	19 1/4	18	19 1/4	18 1/4	20	20	22 1/4	23 1/4	24 1/4	24	29 1/2	29 1/2	29 1/2	34	34	23 1/4	32 1/4
Height		11 1/4	11 1/4	12	12	17 1/4	22 1/4	22 1/4	20 1/4	21 1/4	24	23 1/4	35 1/4	23 1/4	26 1/4	26 1/4	27	26 1/4	28	31 1/4	32 1/4	32 1/4	32	33	19 1/2	23 1/4

Overall Dimensions (in.)

Length	23 1/2	23 1/2	23 1/2	23 1/2	25 1/2	17 1/2	18 1/2	29	28 1/2	30 1/2	28 1/2	29 1/2	28 1/2	36 1/2	34	35 1/2	38 1/2	36 1/2	38	51	51	66 1/2	29 1/2	32 1/2								
Width	15 1/2	15 1/2	16 1/2	16 1/2	15 1/2	14 1/2	14 1/2	16	19 1/2	18	19 1/2	18 1/2	20	20	22 1/2	23 1/2	24 1/2	24	29 1/2	29 1/2	29 1/2	34	23 1/2	32 1/2								
Height	11 1/2	11 1/2	12	12	17 1/2	22 1/2	22 1/2	20 1/2	21 1/2	24	23 1/2	25 1/2	23 1/2	26 1/2	26 1/2	27	26 1/2	28	31 1/2	32 1/2	32 1/2	32	33	19 1/2	23 1/2							

Compressor

Type of system Open
Type of compressor Reciprocating
Compressor drive Belt
Type of shaft seal Balanced bellows
Cylinder head cooled by Air or water
Type of lubricating system Splash or pressure

Oil level measured by Oil filling port
Type of compressor oil Curtis
Viscosity of compressor oil S.A.E. 10

Refrigerant

Kind used, SAR models, sulphur dioxide; others, methyl chloride

Condenser and Liquid Receiver

Condenser cooled by MWR models, water; others, air
Type of condenser Water cooled units—Double tubes
Air cooled units—Finned tubing
Location of condenser Flywheel and pulley side

Type of liquid receiver Horizontal
Models with fusible safety plug All models except domestic

Models with refrigerant filter All commercial units

Materials Used

Cylinder block Alloy steel
Pistons Alloy steel
Condenser tubing Copper

Control

Make of control Penn
Type of control Pressure or temperature

Models with high pressure cut out MWR33-L and larger

Type of overload cut out Thermal cut out

Make of water regulating valve Penn

Valves

Type of piston valves Wafer

Type of discharge valves Wafer

*Gasoline engine.

Servel

Servel, Inc., Evansville, Ind.

Model Nos.	14 A	19 A	30 F	30 EG	40 BW	50 E	50 EW	75 D	75 EG	75 FW	100 D	100 FW	150 B	150 CG	150 CW	200 B	200 CW	700AW	700 slow speed AW
------------	------	------	------	-------	-------	------	-------	------	-------	-------	-------	--------	-------	--------	--------	-------	--------	-------	-------------------

Compressor Specifications

Refrigeration capacity	110	250	395	380	450	580	740	895	660	1070	1200	1350	1500	1620	1780	2260	2610	6950	9.00
Motor size (hp.)	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
Compressor speed (r.p.m.)	431	412	410	470	460	280	315	422	350	450	365	365	465	470	480	465	485	500	700
Bore (in.)	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	3 1/2	3 1/2
Stroke (in.)	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	3 1/2	3 1/2
No. of cylinders	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3
Condensing unit charge of refrigerant (lbs.)	1	1	2 1/2	2 1/2	2 1/2	3	3	3	3	3	6	6	6	6	6	6	6	15	15
Pump down capacity of receiver (lbs.)	2	3	5 1/2	5 1/2	5 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	18	18	18	18	18	18	18	55	55
Quantity of oil in system (pts.)	1	1	2	2	2	4	4	4	4	4	8	8	8	8	8	8	10	24	24

Overall Dimensions (in.)

Width	15	16 1/2	16 1/2	17 1/2	18 1/2	21 1/2	21 1/2	21 1/2	21 1/2	21 1/2	24	24	24 1/2	30	25 1/2	27 1/2	26 1/2	48	48
Depth	20	19 1/2	27	27 1/2	27 1/2	31 1/2	31 1/2	31 1/2	32 1/2	31 1/2	39	39	39 1/2	39	39 1/2	38 1/2	38 1/2	27	27
Height	18	13 1/2	19	20 1/2	20	22 1/2	22 1/2	22 1/2	22 1/2	22 1/2	25 1/2	26	25 1/2	27	26	26 1/2	25 1/2	60	60

Compressor

Type of system Open
Type of compressor Reciprocating
Compressor drive Belt
Type of shaft seal Balanced bellows
Cylinder head cooled by Water on large models

Type of lubricating system Small models—splash; large models—forced

Oil level measured by Liquid level test cock

Type of compressor oil Mineral

Viscosity of compressor oil 10

Condenser and Liquid Receiver

Method of cooling W Models, water; others, air

Type of condenser Counter flow, double tube (water)

Location of condenser Side of unit

Type of liquid receiver Vertical 19A & 700AW; all others, horizontal

Models with fusible coupling All

Models with refrigerant filter None

Materials Used

Cylinder block Semi steel
Pistons Semi steel
Condenser tubing Copper

Control

Make of control Penn or Cutler Hammer

Type of control Thermostat or pressure

Models with high pressure cut out All

water cooled and 100D, 150B, 150CG and 200B.

Type of overload cut out Part of magnetic relay

Make of water regulating valve Own

Valves

Type of piston valves Flapper

Type of discharge valves Disc with oil relief

*Each model can be furnished with size larger motor.

†Type of Briggs and Stratton gasoline engine.

Copeland

Copeland Refrigeration Corp., 332 Cass Ave., Mt. Clemens, Mich.

Model No.	IC-1	IC-2	IC-3	A-1-L	AM	Q	Q-2	QW-2	R
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Compressor Specifications

Refrigeration capacity	114	238	600	114	238	300	430	430	600
Motor size (hp.)	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
Compressor speed (r.p.m.)	360	360	440	360	440	300	300	440	440
Bore (in.)	1 1/2	2	2 1/2	1 1/2	2	2	2	2	2
Stroke (in.)	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
No. of cylinders	1	1	2	1	1	1	2	2	2
Quantity of refrigerant in system (lbs.)	2	2	2	2	2	5	5	5	5
Pump down capacity of receiver (lbs.)	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	20	20	18	20
Quantity of oil in system (pts.)	5	5	1 1/2	5	5	1 1/2	1 1/2	1 1/2	1 1/2

Overall Dimensions (in.)

Width	14	14	21 1/2	21	21	28 1/2	28 1/2	28 1/2	28 1/2
Depth	14 1/2	14 1/2	11 1/2	17	17	17 1/2	17 1/2	14 1/2	17 1/2
Height	22 1/2	22 1/2	25 1/2	26 1/2	26 1/2	16	16	19	19

Model No.

Model No.	RW	SA	W	WA	X	XA	V	Y	Z
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Compressor Specifications

Refrigeration capacity	600	775	950	950	1310	1310	1925	2850	3900
Motor size (hp.)	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
Compressor speed (r.p.m.)	440	640	250	250	365	365	500	365	500
Bore (in.)	2	2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2
Stroke (in.)	1 1/2	1 1/2	3	3	3	3	3	3	3
No. of cylinders	2	2	2	2	2	2	2	2	2
Quantity of refrigerant in system (lbs.)	5	5	5	5	5	5	10	10	10
Pump down capacity of receiver (lbs.)	18	20	28	20	25	20	25	35	35
Quantity of oil in system (pts.)	1 1/2	2	6	6	6	6	7	7	7

Overall Dimensions (in.)

Width	28 1/2	28 1/2	38 1/2	38 1/2	38 1/2	39 1/2	38 1/2	47 1/2	47 1/2
Depth	14 1/2	18	18 1/2	23 1/2	18 1/2	23 1/2	18 1/2	21 1/2	21 1/2
Height	15 1/2	19	27 1/2	24 1/2	27 1/2	24 1/2	27 1/2	30	30

Compressor

Type of system Open
Type of compressor Reciprocating
Compressor drive Belt

Type of shaft seal Bellows

Cylinder head cooled by All water-cooled models except QW2 & RW, water; all others, air

Type of compressor oil Sun No. 3

Viscosity of compressor oil 150 at 100°

Refrigerant

Kind used Methyl chloride

Control

Make of control Penn

Type of control Pressure & temperature

High pressure cut-out water cooled models

Type of overload cut out Thermal

Condenser & Liquid Receiver

Method of cooling Models QW-2, RW, W, X, V, Y, Z—water; others—air

Type of condenser Air cooled models—finned tube; others—shell & tube

Type of liquid receiver Models Q, Q-2, QW-2, R, RW—horizontal; all others—vertical

Have fusible plug Water-cooled models, yes

Models with refrigerant filter All

Valves

Type of piston valves Disc

Type of discharge valves Reed and disc

Servicing Majestic Conventional Units

(Concluded from Page 17, Column 5)

installed to help in properly diagnosing troubles in the field.

When the valve stem is turned in a clockwise direction (Fig. 4) the 1/4-in. flared gauge connection (B) is closed. When the valve stem is turned in a counter clockwise direction, the opening to the compressor (C) is closed.

The 5/16-in. flare fitting (A) at the top of the valve is connected to the discharge gas line leading to the SO₂ condenser. When the unit is being shipped from one point to another, the valve is closed back (counter-clockwise) against the compressor and must be turned as far as it will

Discharge Valve

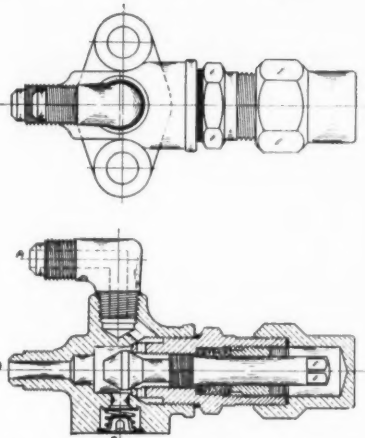


Fig. 4—Discharge shut-off valve.

go in a clockwise direction before the motor is started.

This will prevent the building up of excessive pressure in the pump housing with resultant high wattage and blowing of the motor protector. In the event of such action upon in-

Suction Valve

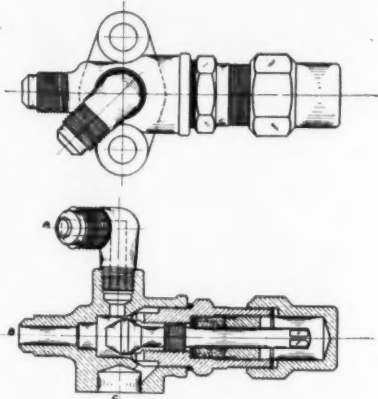


Fig. 5—Suction shut-off valve and check valve assembly.

stalling the refrigerator, it would be well to make certain that the proper procedure has been followed in detail.

The suction shut-off valve (Fig. 5) is also of the three-way type of slightly different internal design. Turning the valve stem in a clockwise direction closes off the 1/4-in. flare gauge connection (B) as in the case of the discharge valve, but turning the valve stem counter-clockwise, in this case, closes off the opening (A) leading to the suction tube from the evaporator.

Mounted as an integral part of the suction valve is the check valve assembly (C)—Fig. 5. This assembly consists of a thin stainless steel disc which is held against a lapped seat by a very light spring and retainer.

The purpose of the check valve is to prevent hot, high pressure gas from escaping from the compressor to the evaporator when the pump stops. If this were allowed, the effect would be a shorter off period than normal.

Condenser

The condenser is of the radiator type consisting of a series of horizontal tubes connected together at

their ends with bends to form a continuous tube. Fifty equally spaced copper fins serve as additional radiation surface. See Figs. 7 and 8.

Receiver

The liquid receiver which acts as a reservoir for the surplus SO₂ charge consists of two steel shells seam welded together at the center. The liquid SO₂ enters from the condenser and is taken from the receiver by a 3/16-in. tube extending to within a short distance of the bottom. See Figs. 7 and 8.

Evaporator

The evaporator is of the header and tube, flooded type. The amount of liquid SO₂ in the evaporator is regulated by a low side float (Fig. 8) mounted in the evaporator header in such a manner that when the liquid level in the header reaches a predetermined point, the float valve needle stops the flow from the receiver.

In normal operation during a running period, this action is so balanced that just enough liquid SO₂ is continuously being metered in to replace an equal weight of SO₂ vapor drawn off by the pump.

The suction fitting is so placed in

d. Thrust pin and spring
2—Replacing Rotor and Shaft
3—Replacing Stator

Including
a. Motor cable
Should the rotor bind, the following points should be checked:

1—Tie rods (should be tightened evenly)
2—Wool yarn spring (see that wool yarn is in contact with shaft—replace spring if broken)

3—Oil wells and wool yarn (if foreign matter is present, wash out with gasoline and replace wool yarn and oil)

4—Shaft (if warped or scored, replace rotor assembly)
If bearing is noisy:

1—Check wool yarn spring as above
2—Check oil in well (Use only high grade medium automobile oil)
3—Check thrust pin and spring (replace spring if broken)

4—Check bearing clearance. If sufficient to cause a rattle even when bearing is well oiled, it will be necessary to replace end bell.

If motor will not start:

1—Check relay (replace if contacts are burned)
2—Check stator for "opens" or "shorts"

6—Reassemble motor. Turn nuts on tie rods in succession, a turn to each, until all four are tight. Rotor should turn freely by hand
7—Replace base.

Majestic Relay

If contacts are badly burned, replace entire relay assembly (See Fig. 10). In order to test a Majestic relay properly, a test panel such as is made by the Premier Electric Co. is necessary.

This panel contains the proper transformer resistances and meter to give the operator control over the output for the testing of electrical equipment on Majestic refrigerators.

With 7 amps. flowing through the relay coils, contacts should be closed without buzzing or chattering. Resistance is added to the coil circuit until the contacts open. This must occur before the current in the coil has reached the value of 6 amps.

If contacts do not close at 7 amps., bend spring support bracket up to increase spring tension. If contacts do not open before the current in the coil has dropped to 6 amps., bend bracket down to decrease spring tension.

Electrolytic Condenser

The electrolytic condenser is used in conjunction with the secondary winding of the motor for starting.

This condenser is a 110 mfd. intermittent duty a.c. electrolytic of the so-called dry type sealed in a seamless aluminum can with hard rubber top. It cannot leak or absorb impurities from the air.

However, should the motor fail to start after all other electrical checks have been made, it would be well to substitute a new condenser for trial. If the new condenser does not clear up the trouble, the old one can be considered to be in good condition.

Motor Protector and Socket

The motor protector used on Majestic refrigerators is not a fuse, but a time lag overload cut-out that will carry the starting current of the motor for sufficient time to start the unit under all ordinary conditions.

Should the motor load down for any reason, the cut-out will blow in from 80 seconds in the case of a stalled motor to about two hours in the case of an abnormal load.

A common house fuse should never be used to protect a motor circuit. A common house fuse small enough to really protect the motor from an abnormal load will not carry the starting current, while a fuse large enough to carry starting current will not blow on anything less than a dead stall. Replace the motor protector socket if it is damaged.

Float Valve Assemblies

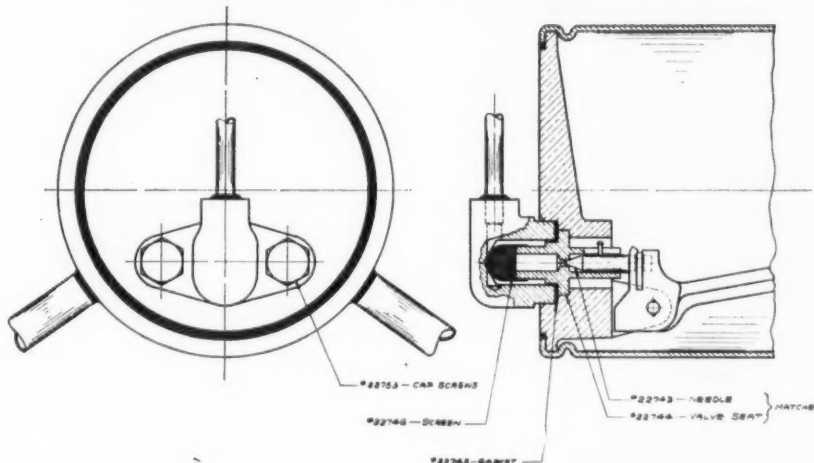


Fig. 6—Low-side float valve assembly used by Majestic.

the evaporator that the oil blanket, which forms on top of the liquid SO₂, is held to a thickness which will not affect the efficiency of the evaporator or rob the compressor of its proper charge of oil.

Model 51 Unit

The model No. 51 unit is primarily the same as the model No. 50 unit with the exception of the evaporator and thermostat.

The evaporator is provided with fins to supply greater heat absorbing surface.

The Majestic control is replaced with a Ranco or Cutler-Hammer control mounted on the evaporator front. Electrical connection to the control box is made with a length of rubber covered cord secured to the tube shield.

The overload protection for the motor is incorporated in the mechanism of the control. As a result of these changes, the control box on the unit mounting base contains only the electrolytic condenser and starting relay.

Electrical Equipment

Control Box Model 50

This control box contains the following parts (see Fig. 9):

Majestic Thermostat
Majestic Relay
Electrolytic Condenser
Motor Protector and Socket.

Control Box Model 51

This control box contains the following parts (see Fig. 10):

Majestic Relay
Electrolytic Condenser.

The thermostat and overload trip are on the evaporator front. Directions for their repair and adjustment will be described later.

Motor

The motor used on the Standard Majestic line is of the condenser-start-induction-run type. The Majestic Electrolytic condenser-start motor was selected instead of the conventional repulsion induction motor because of the high starting torque developed due to the characteristics of the electrolytic condenser which is in series with the starting windings of the motor.

A relay, actuated by a solenoid coil in series with the running windings, closes the starting circuit until the motor is up to speed and then opens the starting winding circuit.

Where special current supplies are available, standard refrigeration motors, manufactured by reputable concerns, are available. The unit mounting base is drilled to carry all well known makes of refrigeration motors.

Majestic motor repairs will be limited to the following:

- 1—Replacing End Belts Including
 - a. Oil tube assemblies
 - b. Wool yarn springs
 - c. Wool yarn

Standard Compressors

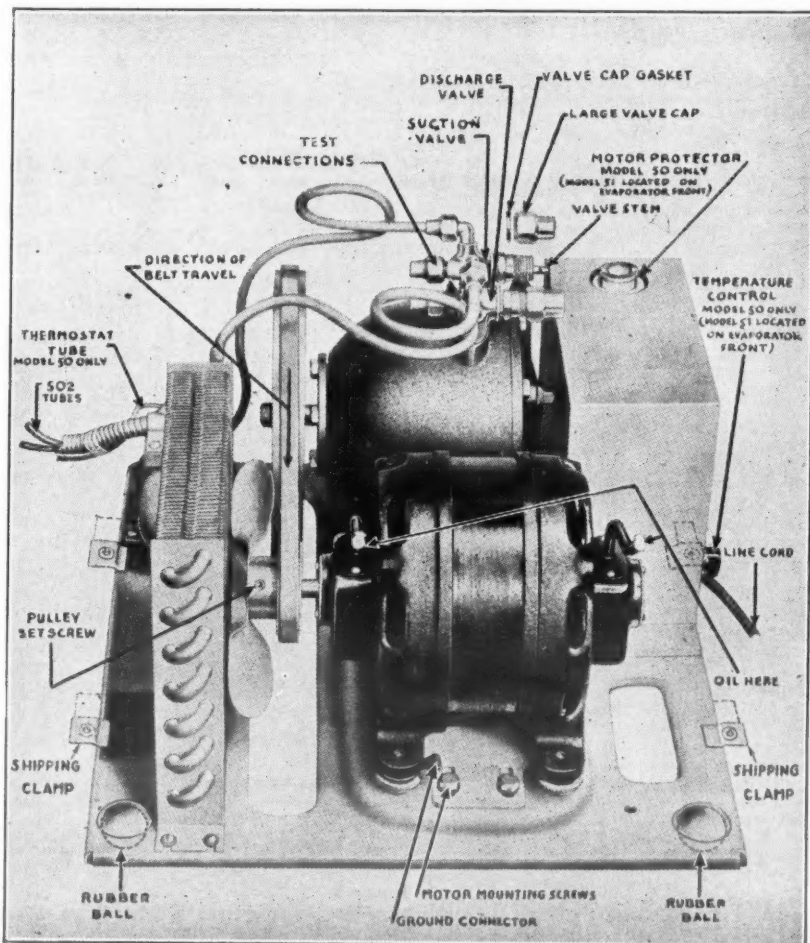


Fig. 7—Standard compressor unit model 50.

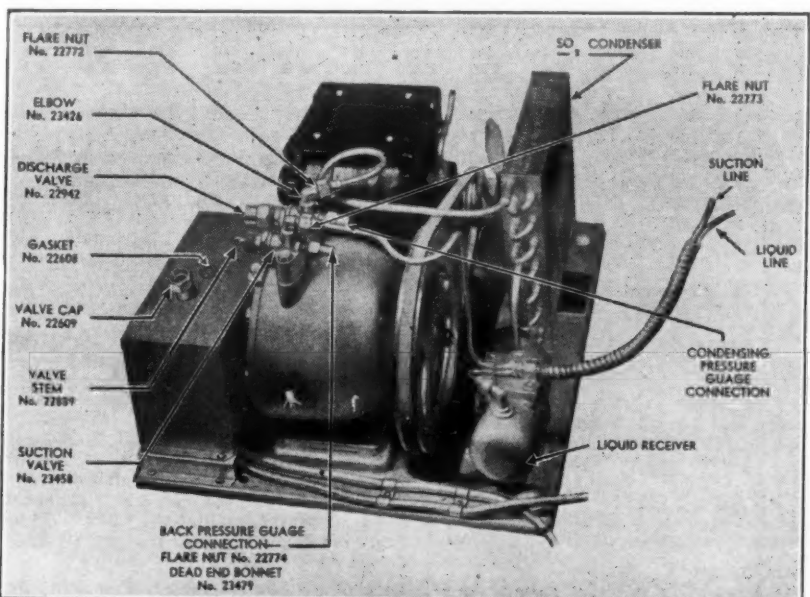


Fig. 8—Standard compressor unit model 51.

Control Assemblies

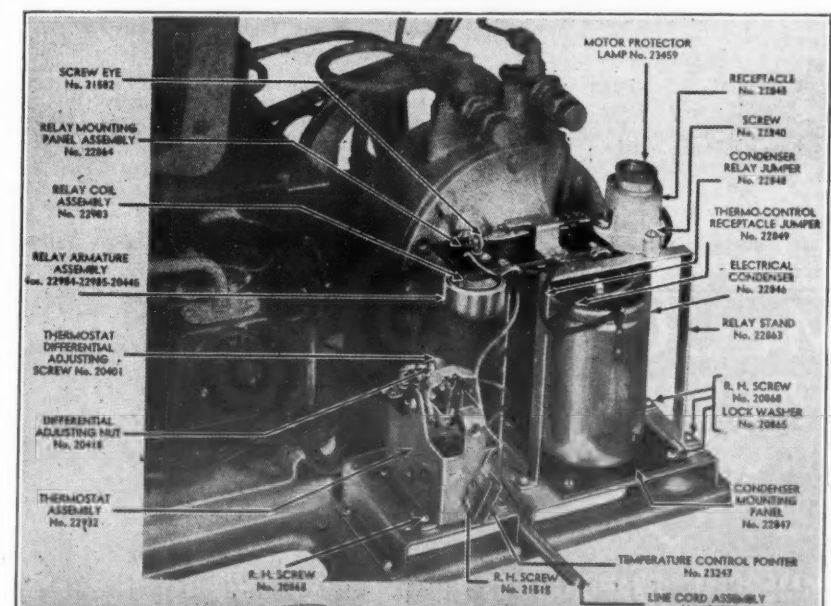


Fig. 9—Control assembly used on model 50.

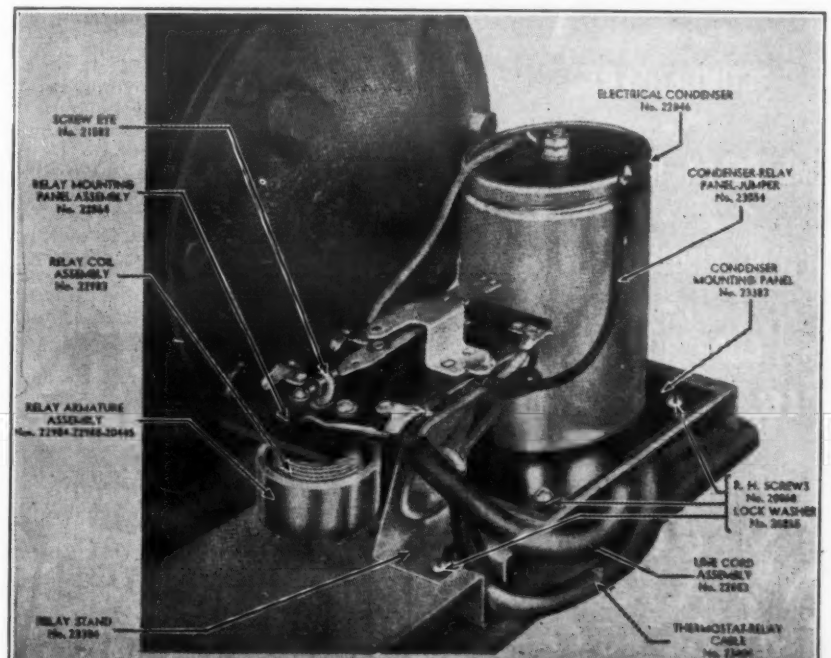


Fig. 10—Control assembly used on model 51.

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Thermal V-8 & V-12

Thermal Units Mfg. Co., Chicago, Ill.

Model Nos. 3 45 62 94

Compressor Specifications

Refrigeration capacity 1,000 1,600 2,300 3,500

Motor size (hp.) 1 1½ 2 3

Compressor speed (r.p.m.) 1,150 1,750 1,150 1,750

Bore (in.) 2 5/32 2 5/32 2 5/32 2 5/32

Stroke (in.) 1½ 1½ 1½ 1½

No. of cylinders 8 8 12 12

Charge of refrigerant (lbs.) 8 10 12 15

Pump down capacity of receiver (lbs.) 12 15 18 20

Quantity of oil (pts.) 3 3 4 4

Overall Dimensions (in.)

Width 16 14 18 18

Depth 22 22 30 42

Height 24 24 28 28

Compressor

Type of system.....Open

Type of compressor.....Reciprocating

Compressor drive.....Belt

Cylinder head cooled by.....Air

Type of lubricating system.....Forced feed

Oil level measured by.....Sight glass

Type of compressor oil.....Suniso No. 3

Viscosity of compressor oil.....150

Refrigerant

Kind used.....Freon

Condenser and Liquid Receiver

Method of cooling.....Water

Type of condenser.....Double pipe or shell and tube

Location of condenser.....Under compressor

Type of liquid receiver.....Horizontal

Models with fusible safety plug.....All

Models with refrigerant filter.....All

Materials Used

Cylinder block.....Cast steel alloy cylinders

Pistons.....In aluminum alloy housing

Condenser tubing.....Steel

Condenser shell.....Steel

Control

Make of control.....Penn and Detroit

Type of control.....Pressure

Models with high pressure cut out.....All

Type of overload cut out.....Pressure

Make of water regulating valve.....Penn

Valves

Type of piston valves.....None

Type of discharge valves.....None

(discharge ports)

(suction ports)

(discharge ports)

(suction ports)

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Kelvinator

Kelvinator Corp., 14250 Plymouth Road, Detroit, Mich.

Model Nos.	B 125H	G 133H	F 150H	F 175	R 1100	R 1150	Air Cooled	B 325H	B 333H	G 350H	F 375	F 3100	R 3150	R 3200	WB 333H	Water Cooled	WF 350H	WF 375	WF 3100
Refrigeration capacity	222	343	562	685	996	1481	252	348	569	810	992	1440	2140	453	665	1042	1262		
Motor size (hp.)	1/4	1/2	1/2	3/4	1	1 1/2	1/4	1/2	1/2	3/4	1	1 1/2	2	2	1/2	1/2	3/4	1	
Compressor speed (r.p.m.)	640	575	450	540	330	490	465	640	575	400	490	330	490	725	640	490	600		
Bore (in.)	1 1/4	1 1/2	1 1/2	1 1/2	2 1/4	2 1/4	1 1/4	1 1/4	1 1/2	1 1/2	1 1/2	2 1/4	2 1/4	1 1/4	1 1/4	1 1/2	1 1/2		
Stroke (in.)	1 1/2	1 1/2	2 1/2	2 1/2	2 1/2	2 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	2 1/2	2 1/2	1 1/2	1 1/2	1 1/2	1 1/2		
No. of cylinders	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
Condensing unit charge of refrigerant (lbs.)	4	5	6	8	8	12	3	3 1/2	4	6	6	8	8	3 1/2	4	6	6		
Pump down capacity of receiver (lbs.)	8.7	10.6	24	34	34	34	5.8	6.4	13.4	22	22	22	22	6.4	8.4	14	14		
Oil in system (pts.)	1.7	2.1	2.4	2.4	3.6	3.6	1.7	1.7	2.1	2.3	2.3	3.5	3.5	1.7	2.1	2.3	2.3		

Model Nos.	WB 3150	WB 3200	WQ 3300	WQ 3500H	WU 3750H	WV 31000H	WV 31500H	WV 133H	WF 150H	WF 175	WB 1100	WB 1150	WQ 1200	WQ 1300
Refrigeration capacity	1917	2630	3840	5650	11300	16000	22600	415	654	796	1282	1761	2562	3135
Motor size (hp.)	1 1/2	2	3	5	7 1/2	10	15	1 1/2	2	2 1/2	3	4	5	6
Compressor speed (r.p.m.)	400	550	400	590	650	440	650	640	485	600	400	550	400	490
Bore (in.)	2 1/4	2 1/4	2 1/4	2 1/4	3 3/4	3 3/4	3 3/4	1 1/2	1 1/2	1 1/2	2 1/4	2 1/4	2 1/4	2 1/4
Stroke (in.)	3 1/2	3 1/2	3 1/2	3 1/2	4 1/2	4 1/2	4 1/2	1 1/2	1 1/2	1 1/2	3 1/2	3 1/2	3 1/2	3 1/2
No. of cylinders	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Charge of refrigerant (lbs.)	8	8	15	15	Holding charge only	5	6	8	8	12	12	12	12	20
Pump down capacity of receiver (lbs.)	14	15	28	47	122	248	248	10.6	15	21	21	23	37	41
Quantity of oil in system (pts.)	3.5	3.5	8.3	8.3	22	22	22	2.1	2.4	2.4	3.6	3.6	8.4	8.4

Model Nos.	G251	G332W	G502W	G752	G1002	G1502	G2002W	G3003W	G5003W	G7503W	G10003W	G15003W	G332G	G502G	G752G	G1502G
Refrigeration capacity	140	310	400	510	670	800	970	1200	1180	1420	1860	2400	3500	5800	10000	12000
Motor size (hp.)	1/4	1/2	1/2	3/4	1	1 1/2	1 1/2	2	2	2 1/2	3	3	4	5	7 1/2	10
Compressor speed (r.p.m.)	320	320	320	360	360	430	275	320	320	400	480	480	480	480	480	480
Bore (in.)	1.8125	1.8125	1.8125	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.5	3.25	4	4
Stroke (in.)	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
No. of cylinders	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Charge of refrigerant (lbs.)	2	3 1/2	3 1/2	4	4 1/2	4 1/2	5	8	8	8	8	12	12	14	17.5	17.5
Quantity of lubricant in system (pts.)	3	3	3	3	3	3	6	6	6	6	6	8	8	9	12	12

Model Nos.	251	332	502	752	1002	1502	2002	3003	5003	7503	10003	15003
Refrigeration capacity	138	305	397	517	662	823	788	980	1188	1163	1612	2125
Motor size (hp.)	1/4	1/2	1/2	3/4	1	1 1/2	1 1/2	2	2	2 1/2	3	4
Compressor speed (r.p.m.)	320	320	320	360	360	430	275	320	320	400	480	480
Bore (in.)	1.8125	1.8125	1.8125	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.5	3.25
Stroke (in.)	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
No. of cylinders	1	2	2	2	2	2	2	2	2	2	2	2
Charge of refrigerant (lbs.)	2	3 1/2	3 1/2	4	4 1/2	4 1/2	5	8	8	8	12	14
Pump down capacity of receiver (lbs.)	2.5	4.5	4.5	5.4	5.4	5.4	5.4	17	17	17	17	29
Quantity of oil in system (pts.)	1	2 1/2	2 1/2	3	3	3	3	6	6	6	6	8

Model Nos.	422	424	426	428	42T3	444	446	412	414	416	418	422	424	426
Refrigeration capacity	747	992	1660	2200	3300	5565	7420	220	280	440	600	760	1240	1600
Motor size (hp.)	1	1 1/2	2	3	5	7 1/2	10	1/4	1/2	3/4	1	1 1/2	2	3
Compressor speed (r.p.m.)	375	500	375	500	500	330	440	450	550	350	500	400	300	400
Bore (in.)	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
Stroke (in.)	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
No. of cylinders	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Charge of refrigerant (lbs.)	7	7	7	14	14	14	14	3	3	4	4	9 1/2	9 1/2	9 1/2
Pump down capacity of receiver (lbs.)	40	40	45	45	70	89	89	4.6	4.6	8	8	30	30	30
Quantity of oil in system (pts.)	6	6	6	6	20	20	20	2 1/2	2 1/2	2 1/2	2 1/2	6	6	6

Frigidaire Equipment

SAN ANTONIO, Tex.—E. L. Bel-
 ler of the San Antonio commercial
 department, recently sold the
 Room Cafe here a complete out-
 fit of Frigidaire equipment.
 The order consisted of a salad dis-
 counter, a dining room water cooler,
 butter and milk storage box, a
 "Frigidaire Cold" compressor to supply
 refrigeration for a four-keg backbar
 refrigerator box, a three-draft arm dis-
 counter, and a water cooler.

VIRGINIA SMELTING

Company

York

York Ice Machinery Corp., Executive		Offices: Roosevelt Ave., York, Pa.									
		Water					Cooled				
Model Nos.	422	424	426	428	42T3	444	446	412	414	416	418
	FW	FW	FW	FW	FW	FW	FW	FW	FW	FW	FA
Compressor Specifications											
Refrigeration capacity	747	992	1660	2200	3300	5565	7420	220	280	440	600
Motor size (hp.)	%	1	1½	2	3	5	7½	10	12	16	20
Compressor speed (r.p.m.)	375	500	375	500	500	330	440	450	550	350	500
Bore (in.)	2½	2½	2½	2½	2½	4	4	4	4	4	4
Stroke (in.)	1½	1½	1½	1½	1½	2½	4	4	4	4	4
No. of cylinders	2	2	2	2	2	3	2	2	2	2	2
Charge of refrigerant (lbs.)	7	7	7	7	14	14	14	3	3	4	4
Pump down capacity of receiver (lbs.)	40	40	45	45	70	89	89	4.6	4.6	8	8
Quantity of oil in system (pts.)	6	6	6	6	20	20	20	2½	2½	2½	2½
Overall Dimensions (in.)											
Width	33	33	35	35	43½	44½	44½	21½	21½	21½	21½
Depth	16¾	16¾	18	18	20½	24½	24½	16½	16½	16½	16½
Height	28	28	29	29	31½	43½	43½	17½	17½	17½	17½

PATENTS

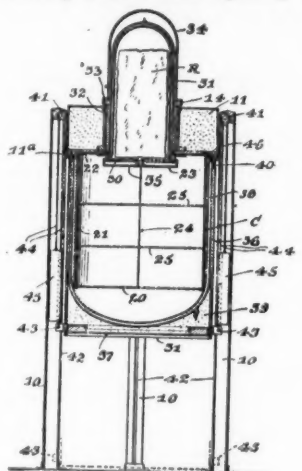
Issued Aug. 28, 1934

1,971,384. METHOD OF MAKING REFRIGERATOR DOORS. Carl Clifford Ritter, Dayton, Ohio, assignor to Frigidaire Corp., Dayton, Ohio, a corporation of Delaware. Application Nov. 30, 1929. Serial No. 410,854. Renewed Jan. 17, 1934. 2 Claims. (Cl. 18-59.)

1. The method of applying a thermoplastic moulding compound to forms which comprises forming a thermoplastic compound into a shell of substantially the shape of the form, placing the shell on the form, placing the form and shell beneath a flexible diaphragm, softening the shell and exerting a force on said diaphragm to force the softened shell firmly against the form to cause the said shell to embrace the form.

1,971,397. REFRIGERATING APPARATUS. Theophil Eichmann and Hans Rufener, Bern-Liebfeld, Switzerland, assignors to International Carbonic Engineering Co., Kennett Square, Pa., a corporation of Delaware. Application Dec. 19, 1932. Serial No. 648,025. In Switzerland Dec. 23, 1931. 11 Claims. (Cl. 62-91.5.)

1. In a refrigerating apparatus, a closed, cold gas retaining refrigerating compartment having a side wall opening there-



1,971,397

through, and a heat insulating unit enclosing said compartment to close the compartment side wall opening, the enclosing unit and compartment relatively movable to progressively expose said compartment opening to any desired extent for access to the compartment.

1,971,429. REFRIGERATOR. Hans Rufener and Theophil Eichmann, Bern-Liebfeld, Switzerland, assignors to International Carbonic Engineering Co., Kennett Square, Pa., a corporation of Delaware. Application Dec. 19, 1932. Serial No. 648,025. In Switzerland Dec. 23, 1931. 11 Claims. (Cl. 62-91.5.)



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Miller

feld, Switzerland, assignors to International Carbonic Engineering Co., of Kennett Square, Pa., a corporation of Delaware. Application Dec. 20, 1932. Serial No. 648,128. In Switzerland Dec. 23, 1931. 6 Claims. (Cl. 62-91.5.)

2. In a refrigerator for utilizing a solidified gas refrigerant, heat insulating walls surrounding and forming a refrigerating compartment there within, a vertical chamber formed extending downwardly through the top insulating wall and formed at its inner end within the refrigerating compartment by a heat transfer bottom wall and side wall extending upwardly therefrom and there around said chamber adapted to receive a charge of refrigerant therein supported on said bottom wall, the under side of the top insulating wall formed with a space therein around the heat transfer wall of the lower end of said refrigerating chamber in open communication with the refrigerating compartment, and a vacuum insulated bell jar removably fitted down into and through the refrigerant chamber, over and enclosing a charge of refrigerant therein.

1,971,518. METHOD AND APPARATUS FOR EXPANDING HIGH PRESSURE GAS. Ralph D. Booth, Brookline, John R. Coffin, Newton Highlands, and Alexander J. Tigges, Boston, Mass., assignors of one-half to Jackson & Moreland, a partnership and one-half to Standard Oil Development Co., a corporation of Delaware. Application Sept. 8, 1932. Serial No. 632,141. 1 Claim. (Cl. 62-136.)

The method of treating a moisture containing gas, which comprises admixing with the gas a substance adapted to lower the freezing point of the moisture, expanding the gas to a lower pressure whereby the gas is chilled to at least the freezing point of water and the moisture is precipitated in sufficient admixture with the substance to maintain the moisture in liquid form, warming the chilled gas by contact with a substance to be refrigerated, and initially cooling the moisture containing gas by means of the warmed chilled gas to preliminary precipitate a portion of the moisture.

1,971,631. BED AIR CONDITIONER. Frank A. Whiteley, Minneapolis, Minn. Application July 25, 1932. Serial No. 624,469. 21 Claims. (Cl. 128-145.)

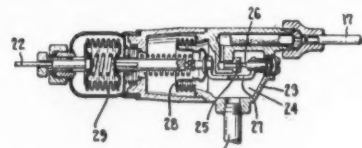
5. An air conditioner for beds comprising an insulated casing above the bed forming a chamber having the mattress as its bottom wall, said chamber having an opening at the pillow end, a second casing, means to move air from the room through the second casing and into the chamber adjacent the foot thereof and thence through said opening, a spraying system including a pump and a well in the second casing for forming a spray of water in said second casing, whereby the air is washed and cooled as it is moved therethrough, and means in the second casing for supplying water to said well to maintain it at a fixed level.

1,971,664. ICE TRAY. Albert C. Smith, Woodside, N. Y., assignor to Servel Sales, Inc., New York, N. Y., a corporation of Delaware. Application Sept. 9, 1932. Serial No. 632,342. 4 Claims. (Cl. 62-108.5.)

3. An ice tray comprising a pan for containing substance to be frozen, compartment defining grids arranged one upon the other in said pan for forming cubes, a partition plate between and separating said compartment defining grids, said partition plate being perforated in a manner to provide direct communication between centers of superposed compartments formed by said grids.

1,971,695. EXPANSION VALVE. Clyde E. Ploeger, Evansville, Ind., assignor to Servel, Inc., New York, N. Y., a corporation of Delaware. Application March 16, 1933. Serial No. 661,003. 13 Claims. (Cl. 236-92.)

9. In a compression type refrigeration system, a thermostatic expansion valve including an expansible element contain-

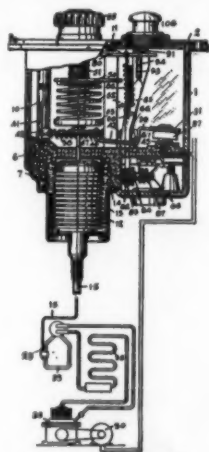


1,971,695

ing the same kind of fluid as that utilized in said system and in such quantity as to develop a pressure less than the pressure in the low pressure side of said system above a predetermined temperature, said predetermined temperature being higher than the normal operating temperatures of said system.

1,971,732. MULTIPLE CONTROL SWITCH. Estel C. Raney, Columbus, Ohio. Original application April 29, 1932. Serial No. 608,319. Divided and this application May 31, 1934. Serial No. 728,413. 9 Claims. (Cl. 200-83.)

1. In a refrigerator control switch, a fixed contact member and a movable contact member, a thermic responsive means



1,971,732

operative to open and close the contacts in response to temperature variation of

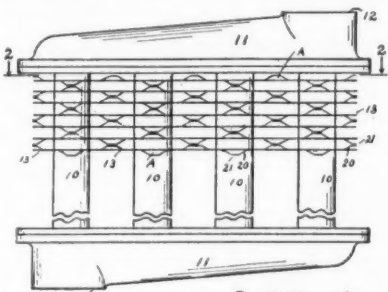
the refrigerator, means for moving the movable contact member in response to a predetermined overload current, means whereby the contact separation is limited to one extent when operated in response to temperature variation and to a greater extent when opened in response to the overload current.

1,971,791. FREEZER. Frederick J. Miles, New Providence, N. J., assignor to Milton B. Levin, Elizabeth, N. J. Referred for abandoned application. Serial No. 450,363, May 7, 1930. This application May 4, 1934. Serial No. 724,187. 6 Claims. (Cl. 257-98.)

1. In a freezer, in combination, a container for holding a refrigerating agent, a casing in which is disposed the material to be cooled by contact with the surface of said container, a device arranged to contact with the surface of the container to effect removal of frozen material therefrom, said device being supported at its center and having floating ends, said device being flexible and capable of conforming to irregularities of the container surface due to the flexure thereof under the pressure of said device, a member supporting said device, said member being operable to force the central portion of said device against the container and to thereby cause said device to conform to the irregularities of the container surface, whereby all frozen material is removed from said container surface by said device, and a removable receptacle mounted adjacent said casing for receiving the frozen material removed by said device.

1,971,842. HEAT TRANSFER DEVICE. Fred M. Young, Racine, Wis., assignor to Young Radiator Co., Racine, Wis. Application Jan. 15, 1934. Serial No. 706,619. 4 Claims. (Cl. 257-154.)

2. A heat transfer device comprising, a plurality of tubes, means whereby a liquid or gas may circulate therethrough,



1,971,842

a multiplicity of closely spaced fins through which said tubes extend, a plurality of spaced apart slits cut along the front and rear edges of said fins leaving narrow strips which are formed into converging ends terminating at the apex into a short flat surface forming projections, said projections positioned alternately on opposite sides of said fins, and located whereby projections on adjacent fins register, forming alternately positioned spacers.

1,971,879. ICE CUBE TRAY. Norman Szafrir, Beaumont, Tex. Application Feb. 25, 1933. Serial No. 658,616. 2 Claims. (Cl. 62-108.5.)

2. Ice cube tray comprising a plurality of individual cube cells with their side and bottom walls spaced apart, and means for uniting said cube cells near the top comprising a web re-entrantly folded forming channels surrounding the

perimeters of the mouths of the cube cells, and of such depth that the lower portions of the walls of said channels are out of contact with the sides of said cube cells whereby free flexion of said walls is possible under expansion and contraction of said tray.

1,971,884. DEVICE FOR REMOVING FROZEN ICE TRAYS. Herbert Herman Tyroff, San Antonio, Tex. Application Nov. 26, 1932. Serial No. 644,513. 11 Claims. (Cl. 254-130.)

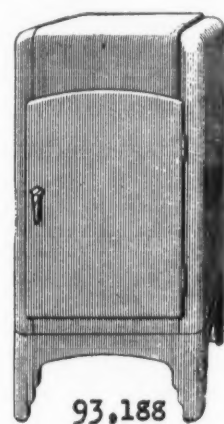
11. A device of the class described comprising a lever, pivotally connected normally vertically aligned nested fulcrums depending from and operatively connected with the lever near one end thereof and movable successively into engagement with a support, and means carried by one of the fulcrums and adapted to overlap and bear against the opposite sides of the other fulcrum for holding said fulcrums in vertical alignment with each other.

1,972,010. AIR COOLING DEVICE. Henri S. de Malaussene, North Hollywood, and Adolph L. Bernheimer, Los Angeles, Calif., said de Malaussene assignor to said Bernheimer. Application June 5, 1931. Serial No. 542,428. 5 Claims. (Cl. 261-103.)

1. A device for cooling air comprising a casing having an air inlet opening at one end and an air outlet opening at the opposite end, a plurality of bag-like fabric screens extending transversely across the casing between the openings, a liquid supply tank arranged in the upper end of the casing having depending nipples, the fabric screens having inlets receiving the nipples for permitting the liquid from the supply tank to flow into the fabric bag-like screens, a liquid receiving tank receiving the lower end of the screens, means for drawing air into the casing through the inlet opening through the screens and out of the casing through the outlet opening, and means arranged within the bag-like screen for guiding the liquid from the receiving tank in a tortuous path down said bag-like screens.

DESIGNS

93,186. DESIGN FOR A REFRIGERATOR CABINET. Ture G. Shelin, Elmwood Park, and Frank J. Fuchs, Chicago, Ill., assignors to Grigsby-Grunow Co., Chicago, Ill., a corporation of Illinois; Frank M. McKey, receiver in bankruptcy. Application June 12, 1933. Serial No. 48,384. Term of patent 7 years.



93,186

The ornamental design for a refrigerator cabinet as shown.

U. S. Court of Appeals Rules on Coin Slide Patent Case

CHICAGO—The United States Circuit Court of Appeals for the Seventh Circuit has delivered an opinion in the case of Walter A. Tratsch, president of the A.B.T. Mfg. Co. of Chicago and the Monarch Tool & Mfg. Co. of Cincinnati vs. The Chicago Lock Co. The case involved patents on a coin operating device.

Appeal to the Circuit Court of Appeals was taken from the decision of the District Court for the Northern District of Illinois, Eastern division.

The District Court's decision held that the Chicago Lock Co. had infringed U. S. letters patent No. 1,908,752, granted to Louis M. Hall on March 16, 1933, on his invention in a coin-controlled device, the patent being jointly owned by the plaintiffs. The District Court at the same time held that the Hall patent mentioned was valid and not anticipated by the prior art patents set up by the defendant in its answer and urged upon the court as anticipating this patent.

The District Court further held that while patent No. 1,908,380, granted on May 9, 1933, to Walter A. Tratsch, one of the plaintiffs, and jointly owned by the plaintiffs, on his invention in a coin slide, was infringed by the defendant's coin slide, the claims of the Tratsch patent were anticipated by the prior art patents set up by the defendant in answer and urged upon the court as anticipating the claims of this patent.

The defendant appealed from the ruling of the District Court on the Hall patent, and at the same time the plaintiffs appealed from the decision of the District Court on the ruling of invalidity of the Tratsch patent.

The Circuit Court of Appeals in its opinion sustained the ruling of validity and infringement of the Hall patent and sustained the ruling of the invalidity of claims 1 to 5 of the Tratsch patent, but reversed the ruling of the District Court on its ruling of invalidity of claims 6 and 7 of the Tratsch patent holding that the District Court erred in its ruling on these claims.

The Circuit Court of Appeals sustained the plaintiffs' contention that the mere transposition of the parts of a patented device without change of function did not avoid infringement of the claims in question.

Gilmer Employees Hold Annual Picnic

PHILADELPHIA—L. H. Gilmer Co. entertained employees and their friends at their annual outing Aug. 25 at Eddington on the Delaware River. Nearly 700 attended as guests of the company.

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THE use of STREAMLINE fittings assures permanently tight connections for electric refrigeration and air conditioning work. They are absolutely refrigerant and seep-proof. Vibration cannot work them loose. They form a connection actually stronger than the tubing—yet much lighter and more quickly completed. They reduce your fitting cost approximately 50%.

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STREAMLINE fittings are space savers. No room is required for wrench handling as is necessary with flared fittings. Lines may be installed close up to each other and connected in a minimum of space. A single straight tube of hard drawn copper connected with STREAMLINE fittings now take the place of multiple lines of parallel small tubes.

STREAMLINE FORGED BRASS FITTINGS ARE FURNISHED IN BOTH O. D. AND NOMINAL SIZES FOR MECHANICAL REFRIGERATION AND AIR CONDITIONING. We manufacture a complete line of forged brass valves and fittings of every type. Send for Catalog R-2.

Patent 1,770,852
Patent 1,776,502
Patent 1,890,998
Other Patents Pending

Mueller Brass Co.

PORT HURON, MICHIGAN

STATISTICS

14 Nema Manufacturers SELL 111,313 Refrigerators in July To Pass Million Mark

The following 14 member companies of the Refrigeration Division of the National Electrical Manufacturers Association (Nema) reported sales for July, 1934: Crosley Radio Corp., Frigidaire Corp., General Electric Co., Gibson Electric Refrigerator Corp., Kelvinator Corp., Leonard Refrigerator Co., Norge Corp., Potter Refrigerator Corp., Servel, Inc., Stewart-Warner Corp., Sunbeam Electric Mfg. Co., Uniflow Mfg. Co., Universal Cooler Corp., and Westinghouse Electric & Mfg. Co. Member companies not reporting included: Apex Elec. & Mfg. Co., Jomoco, Inc., Merchant & Evans Co., and Sparks-Withington Co. The sales of the reporting companies do, however, include units manufactured for the following concerns: Fairbanks Morse Home Appliances, Inc., Major Appliance Corp., Montgomery Ward & Co., Sears, Roebuck & Co., and Truscon Steel Co.

HOUSEHOLD Lacquer (Exterior) Cabinets with Systems	Domestic Sales		Canadian Sales		Other Foreign Sales	
	Quantity	Value	Quantity	Value	Quantity	Value
1. Under 4.00 cubic feet.	3,161	\$ 166,617	227	\$ 11,350	369	\$ 22,569
2. 4 to 4.99 cubic feet.	32,632	2,077,239	440	29,746	3,870	267,244
3. 5 to 5.99 cubic feet.	16,266	1,327,201	223	17,800	1,203	99,067
4. 6 to 6.99 cubic feet.	13,634	1,285,350	112	10,347	794	74,866
5. 7 to 7.99 cubic feet.	10,232	1,107,226	63	6,665	531	58,725
6. 8 to 8.99 cubic feet.	2,460	316,960	8	927	100	11,573
7. 9 to 9.99 cubic feet.	84	17,847	1	226	12	2,364
8. 10 to 12.99 cubic feet.	46	10,069	1	226	3	679
9. Total Lacquer	78,515	6,308,509	1,074	77,061	6,882	537,077
10. Porcelain (Exterior) Cabinets with Systems	3,038	252,024	346	30,645	291	27,798
11. Under 4.99 cubic feet.	1,065	99,539	7	713	289	33,068
12. 5 to 5.99 cubic feet.	2,381	275,152	1	126	398	49,763
13. 6 to 6.99 cubic feet.	6,662	858,040	5	716	137	20,143
14. 7 to 7.99 cubic feet.	1,702	263,438	1	170	34	6,129
15. 8 to 8.99 cubic feet.	522	95,364	5	1,317	47	10,913
16. 9 to 9.99 cubic feet.	360	84,945	1	1,317	47	10,913
17. Total Porcelain	15,730	1,928,497	19	3,042	1,542	178,479
18. Total Lines 9 and 17	94,245	8,237,006	1,093	80,103	8,424	715,556
19. Separate Systems	6,878	324,100	128	7,788	128	7,788
20. Separate Household Low Sides	388	7,630	45	698	112	2,247
21. Total Lines 18, 19, 20	101,511	9,038,834	1,138	86,644	8,664	742,129
22. High Sides, 1/2 hp. or Less	464	25,900	46	2,692	279	16,318
23. Cabinets—No Systems	58	5,940	2	220	2	220
24. Total Household	8,600,645	8,600,645	83,493	83,493	742,129	742,129
25. COMMERCIAL						
26. Water Coolers with High Sides	2,228	209,864	3	313	30	2,782
27. Water Coolers with No High Sides	140	7,490	3	120	1	55
28. Ice Cream Cabinets with High Sides	404	57,528	12	1,524	79	10,140
29. Ice Cream Cabinets with No High Sides	320	44,130	8	854	31	2,842
30. Beverage Coolers with High Sides	2,454	184,221	4	288	8	576
31. Beverage Coolers with No High Sides	216	14,452	1	55	4	204
32. Room Coolers with High Sides	521	111,977	65	13,917	65	13,917
33. Room Coolers with No High Sides	425	58,171	1	186	38	4,250
34. Extra High Sides 1/2 to 1 hp. Incl.	3,244	215,289	82	7,107	887	69,062
35. Above 1 1/2 to 1 hp. Incl.	2,047	237,682	45	5,699	209	26,169
36. Above 1 to 5 hp. Incl.	1,244	252,232	16	3,284	85	15,662
37. Above 5 to 10 hp. Incl.	85	44,182	7	4,996	7	4,996
38. Above 10 hp.	34	30,099	1	1,188	1	1,188
39. Total Lines 33, 34, 35, 36, and 37	6,654	1,188,000	143	1,188	1,188	1,188
40. Extra Commercial Low Sides	5,029	168,804	210	7,505	974	27,005
41. Miscellaneous Cases and Cabinets	45	12,127	13	1,246	15	3,737
42. Total Commercial	1,648,256	1,648,256	28,181	28,181	181,397	181,397
43. Totals—Household and Commercial	\$10,248,905	\$10,248,905	\$111,674	\$111,674	\$923,526	\$923,526

81,463 Household Refrigerators MANUFACTURED By 14 Nema Members During July, 1934

HOUSEHOLD Lacquer (Exterior) Cabinets with Systems	Factory, Branch & Warehouse		U. S. A. INVENTORIES		Production	
	Quantity	Value	Distributors Quantity	Dealers Value	Quantity	Value
1. Under 4.00 cubic feet.	707	\$ 46,898	1,111	\$ 58,086	109	\$ 5,450
2. 4 to 4.99 cubic feet.	32,580	2,218,043	16,810	1,049,192	11,776	773,173
3. 5 to 5.99 cubic feet.	25,283	2,135,809	13,076	1,049,579	9,863	778,672
4. 6 to 6.99 cubic feet.	23,449	2,142,063	7,415	693,723	9,197	814,425
5. 7 to 7.99 cubic feet.	19,747	2,366,617	6,504	731,261	5,834	688,823
6. 8 to 8.99 cubic feet.	5,708	651,444	1,137	137,824	2,037	231,568
7. 9 to 9.99 cubic feet.	566	115,742	117	24,116	13	13,336
8. 10 to 12.99 cubic feet.	134	33,190	27	6,604	8	1,967
9. Total Lacquer	106,174	9,709,806	*55,792	*4,367,441	38,893	3,307,414
10. Porcelain (Exterior) Cabinets with Systems	13,268	1,086,590	1,608	136,428	2,422	197,118
11. Under 4.99 cubic feet.	2,868	284,987	1,138	119,327	362	36,641
12. 5 to 5.99 cubic feet.	7,949	910,549	4,000	469,171	4,111	470,279
13. 6 to 6.99 cubic feet.	13,065	1,696,686	4,516	578,664	5,181	670,338
14. 7 to 7.99 cubic feet.	6,654	988,701	1,888	286,138	2,174	312,551
15. 8 to 8.99 cubic feet.	1,365	245,020	464	89,835	693	125,835
16. 9 to 9.99 cubic feet.	1,546	376,978	363	88,269	239	56,051
17. Total Porcelain	46,715	5,589,521	*18,880	*2,292,787	15,182	1,868,813
18. Total Lines 9 and 17	154,889	15,299,327	*73,672	*6,660,228	54,075	5,176,227
19. Separate Systems	24,287	1,503,657	310	5,814	150	2,734
20. Separate Household Low Sides	8,819	137,022	310	5,814	150	2,734
21. Total Lines 18, 19, 20	187,995	1,640,679	*73,982	10,903	54,225	5,176,227
22. High Sides, 1/2 hp. or less	1,603	85,520	204	10,903	112	6,032
23. Cabinets—No Systems	31,186	1,587,657	36	2,510	20	2,000
24. Total Household	18,613,183	18,613,183	*6,679,545	5,187,043	111,313	9,235,526
25. COMMERCIAL						
26. Water Coolers with High Sides	4,863	424,793	1,958	193,248	482	41,776
27. Water Coolers with no High Sides	1,828	67,197	108	5,627	28	1,388
28. Ice Cream Cabinets with High Sides	903	125,792	63	9,535	43	6,133
29. Ice Cream Cabinets with no High Sides	2,268	299,235	218	26,288	50	6,470
30. Beverage Coolers with High Sides	1,063	99,043	178	11,543	214	13,663
31. Beverage Coolers with no High Sides	1,027	57,226	198	12,114	62	4,289
32. Room Coolers with High Sides	1,832	524,873	287	55,636	31,969	462
33. Room Coolers with no High Sides	2,063	470,109	238	24,750	50	6,168
34. Extra High Sides 1/2 to 1 hp. Incl.	6,350	575,199	1,403	124,347	459	37,977
35. Extra High Sides above 1 1/2 to 1 hp. Incl.	2,590	334,027	884	119,343	260	33,243
36. Extra High Sides above 1 to 5 hp. Incl.	2,402	512,444	667	134,186	142	28,586
37. Extra High Sides above 5 to 10 hp. Incl.	139	82,122	21	12,931	2	1,112
38. Extra High Sides above 10 hp.	75	70,373	1	1,188	1	1,188
39. Total Lines 33, 34, 35, 36, 37	11,556	1,188,000	*3,072	3,072	863	86,300
40. Total Lines 25, 27, 29, 31, 38	20,267	2,026,700	*5,558	5,558	1,755	1,755
41. Extra Commercial Low Sides	22,670	648,270	3,344	118,071	964	27,538
42. Miscellaneous Cases and Cabinets	811	232,705	147	46,170	22	5,028
43. Total Commercial	4,523,408	4,523,408	893,789	893,789	245,340	245,340
44. Totals—Household and Commercial	\$23,136,591	\$23,136,591	*7,573,334	*7,573,334	1,111,313	9,235,526

*These totals are not the sum of the breakdown figures as two companies do not report on individual items.

Household Sales By States Made By 14 Companies

Shipments to Two TVA States Increase

The effects of the merchandising campaign for TVA-approved appliances is reflected in a large increase in July refrigerator sales over the June figures in two Tennessee Valley states. In Georgia the increase was about 54 per cent and in Tennessee around 77 per cent. The tabulation below shows July sales to distributors and dealers in each of the various states by 14 Nema companies.

States and Territories	Household Low Sides
Alabama	1,413
Arizona	226
Arkansas	785
California	4,240
Colorado	740
Connecticut	1,285
Delaware	216
Dist. of Columbia	958
Florida	1,753
Georgia	5,768
Idaho	156
Illinois	5,662
Indiana	2,648
Iowa	1,150
Kansas	1,468
Kentucky	1,849
Louisiana	1,165
Maine	539
Maryland	1,910
Massachusetts	4,258
Michigan	2,825
Minnesota	765
Mississippi	743
Missouri	4,355
Montana	263
Nebraska	846
Nevada	79
New Hampshire	400
New Jersey	4,278
New Mexico	197
New York	14,573
North Carolina	1,397
North Dakota	123
Ohio	6,332
Oklahoma	1,089
Oregon	433
Pennsylvania	8,216
Rhode Island	464
South Carolina	1,237
South Dakota	211
Tennessee	4,895
Texas	3,503
Utah	309
Vermont	214
Virginia	1,890
Washington	1,103
West Virginia	1,450
Wisconsin	1,016
Wyoming	116
Total United States	101,511
Total Canada	1,138
Other Foreign (Incl. U. S. Possessions)	8,664
Total for World	111,313

Alco Valve Builds Factory Addition

ST. LOUIS—Construction of a new factory unit by Alco Valve Co., Inc., which will double the company's manufacturing facilities has been started at 2628 Big Bend Blvd. here, headquarters of the firm.

The new structure is expected to be ready for occupancy by Nov. 1, and will embody latest features throughout, including air conditioning, according to J. L. Shrode, president and general manager. In addition to enlarging the factory space, the general offices will be expanded, and the engineering laboratory improved.

Gear Elected Vice President of Gilmer

PHILADELPHIA—At a recent meeting of the board of directors of the L. H. Gilmer Co., manufacturer of belts and belting, R. E. S. Geare, formerly chief engineer, was elected vice president in charge of sales and engineering.

Penn Will Advertise Temtrol Nationally

DES MOINES—Penn Electric Switch Co. here has just released contracts for a national advertising campaign which will feature the new Penn Temtrol system of temperature regulation, according to company officials.

The campaign will consist of regular advertisements in *Better Homes and Gardens* and an extensive full color series of direct-mail pieces for use by all Temtrol dealers, in addition to folders, Temtrol display demonstrators, newspaper advertisements, etc.

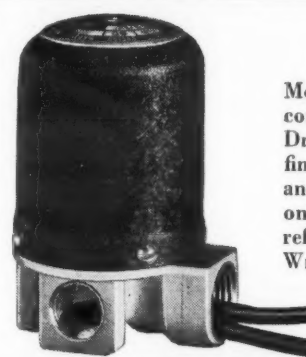
First advertisements will appear in October, the month in which the nation-wide "Rebuild America" program being sponsored by the government under the National Housing Act will be launched. More than 250,000 extra copies of the October issue of *Better Homes and Gardens* will be distributed through utilities, contractors, building and heating dealers, etc.

Each advertisement will carry a coupon, and the returns will be sent to Temtrol dealers to follow up.

BUYER'S GUIDE

MANUFACTURERS SPECIALIZING IN SERVICE TO THE REFRIGERATION INDUSTRY

SPECIAL ADVERTISING RATE (this column only)—\$12.00 per space.
Payment is required monthly in advance to obtain this special low rate.
Minimum Contract for this column—13 insertions in consecutive issues.



A NEW WATER VALVE

Model 71 Solenoid Valve provides dependable control of water spray nozzles on air washers. Drop forged body—heavy stamped cover, crackle finish. Easily installed, small and neat in appearance. Impact type plunger. For use with water only. Can also be supplied for the control of refrigerants. Working pressure 100 lbs. 3/32" port. Write for details.

AUTOMATIC PRODUCTS CO.
121 N. Broadway Milwaukee, Wis.

POSITIVE COLD CONTROL • FOAM CONTROL • AUTOMATIC CONTROL • SAFE

WIDE TEMPERATURE RANGE

Radial Dual Control Beer Cooler

COMMERCIAL COIL & REFRIGERATION CO.
455 N. Artesian Ave., CHICAGO

♦ INSTANTANEOUS INDIRECT COOLING ♦ WIDE CAPACITY RANGE ♦ COMPACT ♦

**Send this big aid to
Better Business**

Dispensers who serve their beer at exactly the desired temperature at all times are getting the bulk of the business these days. Because it enables them to dispense beer in any quantity, at any set temperature, the Radial Dual Control Beer Cooler materially aids dispensers in building up a profitable patronage. Push the Radial Dual Controlled Beer Cooler now—you'll find your prospects enthusiastic over its remarkable advantages. Write today.

KRAMER UNIT COOLERS

**Manifolded
for FREON**

and for a greater than 20° differential between air and refrigerant

Send for New Literature

TRENTON AUTO RADIATOR WORKS

Main Offices and Factory, TRENTON, NEW JERSEY
NEW YORK, 210-212 West 65th Street PITTSBURGH, 5114 Liberty Avenue

STARR FREEZE

OUTSTANDING PERFORMANCE

attested by satisfied users

— EVERYWHERE!

Sturdy Condensing Units from 80 to 2860 Lbs. I.M.E., and all other commercial refrigeration equipment—Wall type cases with machinery—A beautiful household line of modern, conservative styles—Write for full data.

THE STARR COMPANY
Cable "Starr" Richmond, Indiana (factory) Since 1927
1344 S. Flower St., Los Angeles, Calif.

HENRY SCALE TRAP

For Freon and Methyl Chloride

Larger capacity insures longer service without cleaning. Monel screen is held in lead collars at top and bottom. Positive uniform seal established throughout by spring tensioned retaining cone located in base of trap.

HENRY VALVE CO.
Specialized Valves & Fittings for Refrigeration
1001-19 N. Spaulding Ave., Chicago

WRITE FOR BULLETINS DESCRIBING HENRY REFRIGERATION SPECIALTIES

EXCLUSIVE FEATURES

The spring tensioned retaining cone also centers cartridge for ready assembly.

QUESTIONS

Gasoline Engine Unit

No. 1838. (Engineering Contractor, Florida)—"Through the kindness of the Conditionaire Unit Co. of Chicago, Ill., your name was given in answer to a query we had sent them."

"We desire to know if there are any manufactures of combination units of small gasoline engines and compressors. We have in mind developing an air-conditioning unit for approximately 125 cubic feet of space."

"Any assistance you can render in this matter will be greatly appreciated."

Answer: In the April 11 issue of ELECTRIC REFRIGERATION NEWS the Waukesha Motor Co., Waukesha, Wis., announced a small self-contained, gas engine-powered refrigeration unit with about 250 lbs. of ice-melting effect. This "ice machine" is used in the Waukesha products which include a self-contained household re-

frigerator, a milk cooler and an ice maker.

Several of the large compressor manufacturers also furnish gas engines with certain models of condensing systems listed on page 314 of the 1934 REFRIGERATION DIRECTORY. Note also the specifications of gas-engine models of commercial condensing units in this issue of the NEWS.

Refrigerator Manufacturers

No. 1839. (Illinois)—"I would appreciate your advising if you have available a list of refrigerator manufacturers together with their addresses. Also a list of firms manufacturing compressors and their addresses."

Answer: See page 178 of the 1934 REFRIGERATION DIRECTORY for the names and addresses of companies making household size refrigeration compressors. Manufacturers of household electric refrigerators are listed beginning on page 262.

Since the DIRECTORY was published last March, several new companies have entered the field with household refrigerators. They are as follows: Fairbanks-Morse Home Appliances, Inc., 430 S. Green St., Chicago, Ill. National Refrigeration Corp., 924 E. Monument Ave., Dayton, Ohio.

Truscon Steel Co., Electric Refrigeration Division Cleveland, Ohio.

Waukesha Motor Co., Waukesha, Wis. (Gasoline motor-driven)

During the last few months several companies, which were manufacturing household electric refrigerators at the time of DIRECTORY publication, have discontinued this operation. Bohn Refrigerator Co., St. Paul, Minn., has liquidated its stock of electric refrigerators and is now operating in the cabinet business under guidance of a trustee. Alphonse Brenner Co., Inc. has suspended the manufacture of household units and specializes in commercial units and coils. Grigsby-Grunow Co. (Majestic) of Chicago is operating in receivership, manufacturing only parts for servicing machines in use.

Gurney Refrigerator Co., Fond du Lac, Wis., has discontinued its line of electric refrigerators concentrating on ice box and cabinet business. Iceberg Corp. of Gardner, Mass., is liquidating the electric refrigerator stock of a predecessor company and is manufacturing water coolers only. Metal Saw and Machine Co., Springfield, Mass., is making household and commercial size condensing units only having discontinued its line of complete household electric refrigerators. Southern California Engineering Co. of Los Angeles has discontinued the manufacture of household electric refrigerators. Summerheat Corp. of America, Dowagiac, Mich., was petitioned into bankruptcy and reported sold out for taxes.

Insect-Proofing Insulation

No. 1840. (Dealer, Maryland)—"Please advise whether you can give me any information as to whether there is a method of impregnating, sealing or otherwise treating insulation for the purpose of making it repellent to insects."

"We know that many insulations are vermin proof, but even then insects will get in the space between insulation and the metal or wood framework. This treatment, of course, must carry no odor into the interior of the refrigerator."

Answer: The Celotex Co., 919 N. Michigan Ave., Chicago, manufacturer of insulation, has developed a method of treating insulation for making it repellent to insects.

Frozen Dessert Recipes

No. 1841. (Manufacturer, Canada)—"We would appreciate your letting us know if there is a company in the States in a position to supply recipe books for frozen desserts from stock without having them made up specially."

Answer: Borden Kitchen Institute, 350 Madison Ave., New York City, has issued several recipe books containing frozen dessert recipes for use with household electric refrigerators.

Code Controversy

No. 1842. (Manufacturer, California)—"There seems to be a considerable amount of controversy with us and the various code authorities as to which code we actually do come under, as we certainly can't take on 15 or 20 codes."

"Our line of commercial electric refrigeration seems to be somewhat similar to that put out by the General Electric Co. Therefore, we assume that we would come under a similar code."

"Will you kindly inform us the name of this code, and also the name and address of the code authority covering this particular field, so we can take the matter up with them?"

Answer: Recent amendments to the code for the commercial refrigerator manufacturing industry have changed the definitions to cover display cases or commercial cabinets that are equipped with refrigerating machines, that is, cabinets that are self-contained. Where a company manufactures and sells machines only, it falls under the jurisdiction of the supplemental code for the electric refrigeration division of the electrical manufacturing industry.

For complete information write the following code authorities: Electrical Manufacturing Code Authority 155 E. 44th St., New York City. Commercial Refrigerator Code Authority 111 W. Washington St., Chicago, Ill.

Industry Sales

No. 1843. (Manufacturer, Ohio)—"In connection with our Fall dealer meetings and sales plans, we would like to cite the best estimate we can obtain as to the total domestic household (not apartment house) sales on electric refrigerators (cabinets complete with compressors and coils) for the first nine months of 1934, and for the entire year of 1934."

"These estimates should cover the total industry sales. Knowing that you are in the best position to arrive at such estimates, we would appreciate your figures as soon as you can give them to us."

Answer: Sales of household electric refrigerators by 35 industry manufacturers totaled 1,134,800 for the first seven months of 1934. (See page 1.)

We have not made an attempt to forecast sales for nine months for the year 1934. Our sales breakdown does not distinguish between sales to homes and to apartment houses.

Air Conditioner Association

No. 1844. (Manufacturer, Wisconsin)—"Noting first page article in your Aug. 29 issue, have you a list of the Unit Air Conditioner Manufacturers Association, or can you advise me where I can secure one?"

Answer: According to our most recent knowledge, the following companies are members of this association: Campbell Metal Window Corp., 100 E. 42nd St., New York, N. Y. Carrier Engineering Corp., 850 Frelinghuysen Ave., Newark, N. J. De La Vergne Engine Co., Philadelphia. Frigidaire Corp., Dayton, Ohio. General Electric Co., 570 Lexington Ave., New York, N. Y. Kelvinator Corp., 14250 Plymouth Rd., Detroit, Mich. Parks-Cramer Co., Main St., Fitchburg, Mass. B. F. Sturtevant Co., Hyde Park, Mass. Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. York Ice Machinery Corp., Roosevelt Ave., York, Pa.

For any further information regarding this group write to John A. Dewhurst, secretary of the association, at 330 W. 42nd St., New York, N. Y.

Dehydrators

No. 1845. (Dealer, Illinois)—"Where can we purchase an acid exchanger or drier for an SO₂ system? This is to be used in service work."

Answer: Manufacturers of dehydrators are listed on page 303 of the 1934 REFRIGERATION DIRECTORY. The following companies are given:

Fedders Mfg. Co., 57 Tonawanda St., Buffalo, N. Y. Henry Valve Co., 1001 N. Spaulding Ave., Chicago, Ill. Imperial Brass Mfg. Co., 564 S. Racine Ave., Chicago, Ill.

Jelly Brine Solutions

The following letter was received from Glenn Muffy, consulting engineer of Springfield, Ohio, giving additional information in answer to inquiry No. 1825 published in the Aug. 29 issue.

"Jelly Eutectic Solutions are covered by De Remer's U. S. Patent No. 1,861,957, which is controlled by Mr. J. G. De Remer and myself. This patent is part of our 'off peak' group, but separate licenses under this one patent have been granted to a few manufacturers."

"Correspondence relative to licenses for use of this material should be directed to my associate, Mr. Jay Grant De Remer, 535 Fifth Ave., New York, N. Y. Purchases of the material itself can be made for certain uses by addressing Savage Arms Corp., Utica, N. Y., whom we have licensed."

"I will appreciate your kindness in adding this information to that already given your correspondent."

BOOKS

What a Salesman Should Know about Advertising

Author: J. C. Aspley. Publisher: Dartnell Corp., Chicago and New York City. Publication Date: 1926. Pages: 111. Price: \$1.

EMPHASIZING in its first pages that advertising will not do a salesman's job for him, but that it does stimulate buyer acceptance, this book attempts to show how selling men should harness their companies' advertising into their sales tactics to obtain a maximum number of signatures on the dotted line.

It is not a book on advertising principles and technique; rather, it deals with various phases of advertising after it has been prepared, and limits itself still more by discussing only those post-preparation phases which the salesman can use in his everyday work.

Taking up the economics of advertising, the book outlines the ways in which it may help a salesman, then goes about correcting misconceptions as to who actually pays for advertising.

CLASSIFIED

RATES: Fifty words or less, one insertion \$2.00, additional words four cents each. Three insertions \$5.00, additional words ten cents each. PAYMENT in advance is required for advertising in this column.

POSITIONS AVAILABLE

ENGINEER, REFRIGERATION. Must be capable of developing and designing control equipment for refrigeration and air conditioning. Exceptional opportunity. State age, experience, and salary expected. Box 639.

POSITIONS WANTED

MECHANICAL ENGINEER with nine years' experience as Engineer, Assistant Chief Inspector and Production Manager, and Chief Inspector of two companies wishes connection in going concern. Box 638.

WHOLESALE REFRIGERATION SUPPLIES

SULPHUR DIOXIDE, per lb., 20¢. Methyl Chloride, per lb., 60¢. (We will refill your cylinder.) 5 lb. Sulphur Dioxide or 3 lb. Methyl Drum, \$3.50. 10 lb. Sulphur Dioxide or 6 lb. Methyl Drum, \$6.00. 20 lb. Sulphur Dioxide or 35 lb. Methyl Drum, \$10.00. Carbon Tetrachloride, per gal., \$1.60. All White Anhydrous-Vacuum Oil Co. Refrigeration Oil, 300 Viscosity. Pour test -25° per gallon, \$1.60. Calcium Chloride, 100 lbs., \$3.25. 1/2 or 3/4 inch Door Gasket, per ft., 3¢. Automatic pressure water valves, \$6.00. Penn Cold Controls, \$3.95. Penn JP Low-side Control, \$6.00. Penn LS Dual Control, \$13.20. 2 1/2 inch U. S. Compound Gauge, \$1.30. 2 1/2 inch U. S. Pressure Gauge, \$1.00. Fedders Thermostatic Expansion Valve, \$7.50. American Automatic Expansion Valve, \$3.75. (Specify connections and gas.) Dehydrated Copper Tubing, .035 wall thickness, 1/2 inch 3¢, 3/4 inch 5¢, 1 inch 6¢, 1 1/4 inch 8¢. Also complete stock of Imperial Brass Flare Fittings, Valves and tools, Sweat Fittings, Hard Copper Tubing, Motor Brushes and Bearings, Gates Refrigerator Belts, Fedders Evaporators and Coils. TERMS: Net, C.O.D., or 5% discount, cash with order, f.o.b. Chicago. Special quantity prices and detailed specifications furnished on request. SPECIAL FREE OFFER: Confidential technical advice given Free on any service or installation problem. Carl John Stein Company, Established 1890, 122 West Illinois St., Chicago, Ill.

As we have discontinued the manufacture of fixtures, we offer our remaining stock of complete Service Bars, and Milk Coolers, both self-contained, at drastic reductions. Act quickly. Wire or write today for complete details.

Samples may be inspected at our New York warehouse, 534 W. 58th Street, N.Y.C., or at our Chicago warehouse, 549 W. Randolph St.

SERVEL SALES, INC.

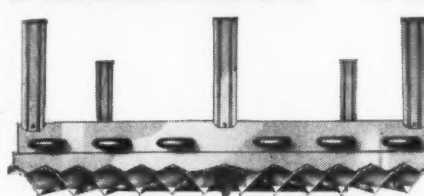
ing, and finally points out some of the far-reaching effects of advertising—the "by-products" which do much to make it a mighty business institution.

Second part gets down to specifics, and shows how the salesman can actually use advertising as an entering wedge in his presentation to prospects, how to capitalize on his company's direct-mail activities, how to deal with the wait-for-demand customer and the one who is "down" on advertised brands, how to make the most of inquiries from prospects, how to revive dead inquiries, how to get dealers to connect their advertising with national copy.

In the last section of this book is some straight talk on personal advertising, in which the salesman is told that everything he says, does, or wears is an advertisement of himself and his company. First Mr. Aspley talks about appearance, then about the use and misuse of words. He discusses the advantages of making every call an advertisement for the company even if no sale is made, and ends by telling why the best advertisement is a satisfied customer.

SUBSTANTIAL AND OLD-ESTABLISHED BRITISH FIRM OF ENGINEERS desire to manufacture partially and assemble ELECTRIC HOUSEHOLD REFRIGERATORS and wish to contact with AMERICAN FIRM for purchase of necessary refrigerating units for assembly into British built cabinets, and supply of complete designs of household refrigerators, on mutually satisfactory basis. Write Box 178 at Horncastles, 103, Cheapside. London, E.C.2., England.

PEERLESS FLASH COOLER



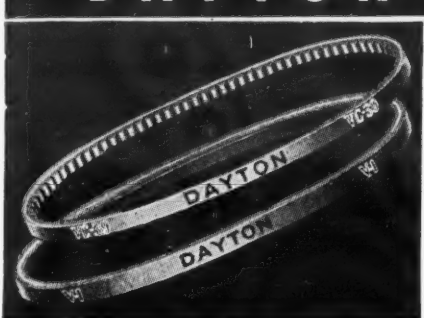
The NEW Eye Appealing Method of Cooling Walk-In Refrigerators

STYLE & RESULTS

Fin Coils and Drip Pans Engineered in an Integral Unit—Saves Installation Cost and Operating Cost

PEERLESS ICE MACHINE CO. 515 W. 35th St. Chicago

DAYTON V-BELTS



There is a Dayton V-Belt for all makes and types of refrigerators. A stock is available near you. Send for price list and name of your nearest distributor.

THE DAYTON RUBBER MFG. CO. DAYTON, OHIO

The world's largest manufacturer of V-Belts

COPELAND REPAIRS — REPLACEMENTS

REPAIRS	REPLACEMENT PARTS
B & B Household Controls.....\$2.50	Howell Special Capacitor Type
Penn Household Controls..... 2.50	1/2 HP Refrigerator Motor.....\$11.00
Penn Commercial Controls..... 4.50	Amer. Rad. Household Exp. Valve 4.50
Amer. Rad. Household Exp. Valve. 2.50	Amer. Rad. Multiple Exp. Valve.. 7.50
Amer. Rad. Multiple Exp. Valve.. 3.50	Penn Commercial Controls \$3 & \$12.00
Apex Water Regulating Valve..... 3.50	Iso Butane (Freezole) Per lb..... 1.25
Penn Water Regulating Valve..... 3.50	Methyl Chloride, Per lb..... .70

We also carry a complete stock of Gilmer Belts, Penn Water Regulating Valves, Glass Defrosting Trays, Lead and Fibre Gaskets, Etc. WRITE FOR PRICES. Forty Eight Hour service on repairs, immediate shipment on replacements. All Repairs and Parts guaranteed to be free from defects in Workmanship, and Material for ONE YEAR.

REFRIGERATION SERVICE LABORATORIES, INC.

418-20 Rush Street

Chicago, Illinois.

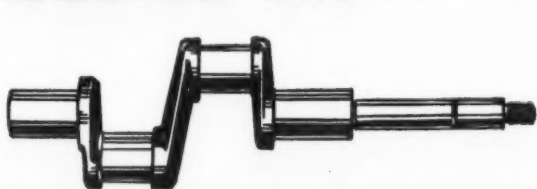
THE TRADEMARK OF FOUR PACE SETTERS
IN COIL EFFICIENCY

SUR-E-FEX Fin Coils
FAN-E-FEX Diffusing Units
HUM-E-FEX Non-Dehydrating Coils
AIR-E-FEX Air-Conditioning Units

SEND FOR NEW CATALOG DESCRIBING THESE SENSATIONAL DEVELOPMENTS

REFRIGERATION APPLIANCES, INC.
H. J. KRACKOWIZER, Pres.
1342 WEST LAKE ST., CHICAGO

SHAFTS... Crank and Eccentric



for Compressors, made to YOUR Specifications.

Manufacturers—Send Blue Prints for Quotations.

MODERN MACHINE WORKS, INC.
Specializing in the Manufacture of SHAFTS
156 N. Milwaukee Street Milwaukee, Wisconsin

1934 Refrigeration Directory and Market Data Book

A complete list of manufacturers of refrigeration systems, equipment, parts, materials, supplies, production and service tools, related products, companion merchandise, material handling and delivery equipment, and other devices and services used by the industry. Also detailed specifications of all models of all makes of household and commercial refrigeration equipment, and all available statistical data on past sales of refrigeration equipment and the potential future market.

PRICE \$3.00 PER COPY

Business News Publishing Co., 5229 Cass Ave., Detroit, Mich.